in severity or cease entirely as the typical ataxic symptoms appear. Dyspepsia is seldom present in tabetics who suffer from gastric crises. These crises should be differentiated from those of neurasthenia and hysteria, from the painful vomiting and colic of lead poisoning, and from the pains resulting from gall-stones or renal calculi. "To me it appears most likely," adds Professor Ewald, "that the gastric crises are due to auto-intoxication characterised by the presence of a toxin which has no influence upon normal nerves but which readily produces a state of irritation on the (sensory) nerves whose integrity has been impaired" in tabes dorsalis. No drugs can cut short an attack, though some little relief is obtained by the administration of antipyrin, erythrol tetranitrate, or cerium oxalate. In grave cases morphia has to be given hypodermically to alleviate suffering, but care must be taken that the patient does not become addicted to the morphia habit. Professor Ewald says that the injection of a few drachms of an anæsthetic mixture (cocaine hydrochloride, one and a half grains; sodium chloride, three and a half grains; and water to three and a half ounces) into the intradural space of the spinal cord is attended with relief of pain in severe cases.

THE SUPPLY OF VACCINE LYMPH IN SCOTLAND.

THE memorial which was submitted to Lord Balfour on July 15th deserved a reception different from the one which it encountered. As mentioned in THE LANCET of July 18th, p. 180, it pointed out that the various enactments relative to vaccination in Scotland contained no provision for the supply of glycerinated calf lymph and it therefore asked that the Government should establish in Scotland an institution for the preparation of calf lymph which might be distributed gratuitously to medical practitioners under such regulations as might be considered necessary. No one but an anti-vaccinationist would deny that the request was reasonable. Neither could anyone condemn it as impracticable, because the manufacture of lymph in official laboratories and its gratuitous distribution by the Local Government Board have been practised on a large scale in England for more than two years. Lord Balfour, in his reply, went over the whole ground conscientiously in ample detail, but he gave the deputation no encouragement. His observations might with perfect correctness be summed up in a few words by saying that the memorialists asked for lymph and received a lecture instead. "Memorial inaccurate and misleading," "not a fair way of presenting the case," "no substantial complaint made or proved against the lymph now in Scotland at the present time," "quotations not accurate," and so on, together with some rhodomontade about the risk of destroying the "structure of a system which is giving confidence to the people of Scotland." All these criticisms appear to us to be nothing more than the floundering of a perplexed politician unwilling to disturb the existing order of things and nettled by the discovery that a few medical men have ventured on the policy of Oliver Twist and are actually asking for more—not for themselves personally, be it remembered, but for the community at large. Persons holding public positions must not feel aggrieved if they are judged according to the inferences which may reasonably be drawn from their official utterances and if their treatment of great public questions is viewed by the public broadly and without minute attention to unimportant details. In some respects his lordship's criticisms of the memorial appeared so remarkable that before venturing to comment on them we not only re-read the lengthy account of the proceedings furnished by our own representative who was in attendance, but we also perused the reports of our contemporaries the *Scotsman*, the *Glasgow Herald*, and the *Times*, all four of which were found to be sufficiently in agreement. In brief, then, the memoria asked for a supply of glycerinated calf lymph because it ha certain advantages over humanised lymph and arm-to-ar vaccination. It was impossible that any persons could b found who had a better knowledge of every detail of th subject than the memorialists themselves and yet th Secretary of State, without in set terms professing t be an expert in vaccination, told them that no substantia complaint had been made or proved against the lymp which was actually used in Scotland at the present time This may be an excellent maxim in law and in many of th casual circumstances of daily life, but it is totally in applicable to a progressive science and art such a medicine or surgery, and if this policy were adopted b men of genius no advancement would be possible. Wa there any "substantial complaint made or proved" agains attempting a diagnosis in thoracic disease before Laenne invented the stethoscope or in disease of the eye befor Helmholz introduced the ophthalmoscope? Was there "substantial complaint made or proved" against cinchon bark before Pelletier isolated quinine? An infinity o analogies in the mechanical arts will suggest themselves t everybody. Then as to vaccination by public officials. H told the deputation what it already knew very well—that i England the public vaccinators vaccinate 56 per cent. of th children (of course with glycerinated calf lymph), while i Scotland the parochial vaccinators vaccinate only 2 per cent. This was used as an argument against the memorialists, wh were informed that they had no cause of complaint becaus in England, just as in Scotland, the lymph is not supplied t private practitioners. No one in the room could have failed to perceive that this was a mere juggling with words, for i England any parent who may desire it (even a Secretary of State) is entitled to have his child vaccinated gratuitously by the public vaccinator. The memorial did not go so fa as this, it did not ask for the appointment of official vaccinators remunerated out of the public rates, it merely asked for a gratuitous supply of lymph. To take only one more instance. Lord Balfour in congratulating his countrymen on the high proportion of the successful vaccination of infants seemed to have overlooked the pressing necessity that exists for encouraging revaccination and conveniently to have forgotten that Baillie Graham had just told him that in a recent epidemic of small-pox[1] the municipality of Glasgow spent £4500 in the purchase of lymph for revaccination, some of which had to be obtained from Paris.

FRACTURE-DISLOCATION OF THE CERVICAL SPINE WITHOUT PARALYSIS.

WE have lately had an opportunity of seeing at St Thomas's Hospital a very extraordinary case of fracture-dislocation of the cervical spine not associated with paralysis and, in fact, only discoverable by the x rays. The patient, a man, aged 56 years, fell down the stairs in his house a month before admission. He struck the back of his head on the wall at the bottom of the stairs and forced his head forwards, the chin being driven into the sternum. He got up and resumed his work on the next day and continued to work for a fortnight afterwards. He then came under the care of Mr. H. A. Easton who examined him with the x rays and found a fracture of the upper cervical spine. This was so unusual in the absence of symptoms that he sent him to Mr. W. H. Battle. The man complained merely of a stiff neck and of some pains at the back of the head and shoulders. There was no paralysis. The neck was held forwards stiffly and appeared to be thickened. A skiagram showed a fracture through the body of the axis with displacement of the body of that bone and the atlas forwards. The case was shown at a recent meeting of the Clinical Society of London and we understand that the subject will be brought forward at an early meeting of the society in October. We hope that this will be done as we have cognisance of other concealed fractures of the spine of somewhat similar character. They are very important from a medico-legal aspect and are not simply clinical curiosities. The high position of the fracture and displacement of the fragments without paralysis make this case unique.

---

[1] THE LANCET, August 16th, 1902, p. 452.

THE NEW SYDENHAM SOCIETY.

WE are requested to remind our readers that the annual meeting (the forty-fifth) of the New Sydenham Society will be held at Swansea next week. It will take place in the board-room of the Higher Grade School on Friday, July 31st, at 9 A.M. Mr. Henry Power, the treasurer, will occupy the chair. Not only the members of the society but all who are interested in its objects are invited to attend.

THE VON PETTENKOFER MEMORIAL FUND.

IT is proposed to erect to the memory of von Pettenkofer a marble statue of double life-size in Munich and towards this object £89 have been collected in Great Britain. The balance of this sum, after deducting £5 for the expenses of printing and postage, has been sent to the Bürgermeister of Munich who, through Dr. Christopher Childs, the honorary secretary and treasurer of the fund, desires to offer his warmest thanks to all those who have assisted in providing a contribution in Great Britain. We are pleased to know that some of our profession have so readily responded to the appeal for contributions towards this fund, but we had hoped that the total sum collected in Great Britain would have exceeded £89.

THE EPILEPTIC COLONY AT CHALFONT ST. PETER, BUCKS.

THE tenth annual report which has just been issued by the National Society for the Employment of Epileptics refers to the administrative and medical aspects of the epileptic colony at Chalfont St. Peter, Bucks, and to the general history of the colony during the year 1902. This institution has accommodation at present for 170 inmates, but the report points out that there is urgent need for the building of additional homes or villas at the colony to meet the increasing demands of cases seeking admission. A special convalescent home has just been erected and completed to receive casualties and sick cases occurring in the colony. The general health and progress of the "colonists" during the year have been eminently satisfactory; in fact, since the summer of 1897—a period of six years—there has been no death at the colony. The occupations and industries in which the inmates are employed include basket-making, laundry- and needle-work (for females only), carpentry, plumbing and painting, tailoring, boot-mending, and farm and garden work. The members of the honorary medical staff state in their report that 72 new patients (48 males and 24 females) were received at the colony during the year and that 36 patients (23 males and 13 females) left or were discharged as improved or partially recovered. With the extension of the colony, both in size and usefulness, the methods available for educating and employing the inmates have also increased. The present report confirms the view put forth in previous reports that the colony system as adopted at Chalfont St. Peter is of especial advantage in the training of young adult epileptics, both male and female. The colony as it now stands comprises 210 acres of farming land, gardens, and orchards, homes, workshops, and other buildings, representing a capital cost of over £40,000. By scrupulous economy in working and by the generous aid of friendly donors its work during the past few years of its existence has been accomplished without incurring debt. Full particulars as to the mode of application for candidates for admission as colonists and all information connected therewith are contained in a pamphlet entitled "Information for Applicants and their Friends," copies of which may be obtained from the secretary, Mr. G. Penn Gaskell, 12, Buckingham-street, Strand, London, W.C., who will also give information regarding intended gifts and bequests to the society.

THE SOILING OF FABRICS BY THE USE OF FLUID DISINFECTANTS.

THE free use of fluid disinfectants in houses in which infectious disease exists, or is suspected to exist, is a universally established practice and there can be no doubt of its value. One unsatisfactory feature, however, in connexion with the use of disinfectants is that some of them, at any rate, are not only greatly deficient as regards their active antiseptic ingredients but they are apt when used freely, and especially the phenol preparations, to leave indelible stains on sheets, blankets, and other fabrics. This is a serious matter to the poor householder whose means are often sadly strained to meet the expenses of a sick room. Stains on blankets and on sheets are very objectionable and present an unsightly and spoiled appearance which considerably discounts the value of the bed-clothing. Furthermore, stains on bed linen, &c., not unnaturally suggest an unpleasant association with infectious disease. It is desirable, we think, that all manufacturers of disinfectants should be compelled to make a statement as to the percentage of the active ingredient contained in their preparations and they should also ascertain that the disinfectant when properly used leaves no stains on fabrics. We have examined a number of preparations which comply with these requirements; they are efficient germicides and do not stain. It is only a matter of careful preparation, especially in the case of the alkaline mixtures, which, however, often contain little else than inert tar compounds. We may also draw attention to the miserably weak liquor of which the sanitary authorities are in the habit of distributing samples; they are often objectionable in appearance and offensive in odour, to say nothing of being practically worthless as germicides. Of course, it is important that a fair price should be paid for a really active fluid which could be diluted by the sanitary officers to a convenient and efficient strength. In this way the officials could not only reduce the strength to the desired limit of 3 per cent. of phenol or its homologues but they could prevent damage to clothes and other articles. It seems to us that all disinfectant preparations should be required by law to conform to a definite antiseptic value.

SUICIDES IN PUBLIC ASYLUMS FOR THE INSANE.

IN the *Journal of Mental Science* for July Dr. H. A. Benham, medical superintendent of the Fishponds Asylum, Bristol, gives an account of his studies of suicides which had occurred during the period 1890 to 1902 in the public asylums of England and Wales. During that period 201 cases of suicide occurred, 126 being males and 75 females. 16 patients committed suicide after effecting their escape and 20 patients did so while out "on trial." As to the means chosen for committing the suicidal act, a little over 50 per cent. of the total number adopted the method of hanging themselves, while 13 per cent. effected the act by cutting their throats. The other methods adopted were as follows in descending order of frequency—viz., drowning, strangulation, injury by railway trains, poisoning, jumping from windows, and suffocation. Of the suicides which actually occurred within the precincts of asylums the act was committed during the day in 79 per cent. of cases and by night in 21 per cent. "Taking the suicides committed by night," says Dr. Benham, "the smaller number is probably accounted for by the fact that not only is a smaller number of hours in question (some of which are passed in sleep) but also that all the suicidal patients are at that time concentrated in observation dormitories." On no pretence is any suicidal patient allowed at *the present day to take anything to bed.* Neglect of this precaution had in the past led to many suicides, the means adopted by the would-be suicides varying from a secreted handkerchief for tying round, or stuffing into, the throat to a piece of sharpened iron or tin for cutting the throat. All suicidal patients now sleep in special wards, each of which is specially "staffed." Sharp instruments, such as knives, razors, and scissors, are locked up and are never allowed to come within reach of suicidal patients, all medicines are kept locked up in cupboards in each ward, and the doses prescribed for sick patients are only given out by the charge attendant or his deputy. Nurses in special charge of suicidal patients or while present in the wards are not permitted to wear hat-pins, the uniform cap being fastened with a safety-pin. Finally, the vigilance of the night attendants is tested by a system of electric clocks connected by wire with a recording apparatus which is placed in the medical superintendent's office. In the dormitories the clock is "pegged" every half hour—thus guaranteeing that the attendants are awake—and a record of each "pegging" is automatically registered in the medical superintendent's office. The rooms of attendants are kept locked so that patients cannot *obtain any articles from them. In short, the whole system* of supervision and care of suicidal patients has been, says Dr. Benham, so highly perfected in asylums that suicides are now very rare events even in our largest public asylums.

Sir William Selby Church, the President of the Royal College of Physicians of London, will deliver the opening lecture of the winter session at the Post-graduate College, West London Hospital, Hammersmith-road, W., early in October.

THE King has approved of the re-appointment of Mr. William Gabriel Rockwood, M.D. Madras, as an unofficial member of the Legislative Council of the Island of Ceylon.

THE ILLNESS AND DEATH OF THE POPE.

(FROM A CORRESPONDENT.)

THE following detailed story of the illness and death of the Pope has been sent to us by a thoroughly well-informed correspondent. The complete accuracy of the public bulletins is supported by his statements:—

On Tuesday, June 30th, the Pope complained of slight feelings of dyspepsia and as he was particularly fond of physicking himself he determined to take a dose of castor oil. This acted rather too strongly during the next two days, but he went on with his usual receptions and with his drives in the gardens of the Vatican, which he had begun rather earlier than usual this year. On Friday, July 3rd, during the afternoon drive, he did not feel at all well and returning to his apartments went to bed where he fell into a prolonged fainting fit. Dr. Lapponi, who has been the Pope's private physician for many years, on being summoned, declared that this was due to the excessive action of the castor oil which had brought on some disturbance of the stomach and, in fact, the Pope would not take any nourishment at all, refusing even a glass of claret which was his usual "pick-me-up." Some anxiety was felt during the night which was apparently passed by the Pope in a state of semi-delirium until the dawn, in spite of a dose of sulphonal (his usual soporific), when after taking a little cordial he felt re-invigorated and calmer.

During the next day, Saturday, the loss of appetite continued and in addition the Pope suffered from shortness of breath, so that the daily receptions had to be postponed. There was, however, no fever. Towards evening *symptoms* of prostration made their appearance, the pulse being very weak and the action of the heart being barely perceptible. A hypodermic injection of caffeine was given which caused a great deal of pain. Caffeine was also given by the mouth, as was also some nourishment, and a little sleep was obtained. Dr. Lapponi slept in the Vatican. A consultation with Professor Mazzoni was determined on and this took place on the next morning, Sunday, July 5th, at 8.30. The bulletin then issued was as follows:—

> Dr. Lapponi, being anxious concerning the health of the Holy Father, held this morning a consultation with Professor Mazzoni, who confirmed the diagnosis already made by his colleague of "senile [illegible] proved of the treatment instituted. [illegible] tient is, considering his age, serious [illegible]

Professor Mazzoni, it may be remembered, operated on the Pope three years ago for a suppurating cyst in the side with excellent results.[1] He is surgeon to the ancient hospital for women of San Giovanni in Laterano and is a *privat-docent* for gynæcology in the university.

I had an interview with Professor Mazzoni in the evening. He stated that the hepatisation affected the upper and middle lobes of the right lung and that there had been symptoms of considerable cardiac weakness and some difficulty in respiration; there was no fever, cough, or expectoration. At 9 P.M. on Sunday the following bulletin was issued:—

> Since the morning there has been slight increase in the weakness. The objective conditions of the thorax remain unaltered. Respiration somewhat frequent. Pulse weak, but not irregular. Temperature subnormal. Mind most clear.

Notwithstanding his weakness the Pope remained out of bed for a part of the day, dictating letters and making his final dispositions on temporal and spiritual matters. He also dictated some Latin hexameters (and requested his secretary to send them immediately to be printed, as he wished to see the proofs). The first line of these runs:—

"Sol moritur vespri cedens sua regna rubenti."

They are somewhat melancholy and comprise a farewell to all Christians.

Shortly after this consultation the Viaticum, or Last Sacrament, was administered to the Pope sitting up in his bed in the presence of several cardinals and other members of his family and intimates. During the recitation of the Confession when the words "*Mea culpa, mea culpa, mea maxima culpa*" were reached the Pope extended his hands and struck his breast three times in token of deep sorrow for the sins of his life. Then with astonishing mental clearness he requested the cardinals present, numbering 28 or 29 in all, to approach one by one. He recognised them individually and had a parting word for each. The bulletin issued on Monday morning was as follows:—

> [illegible] condition of the august sufferer, while no better, is certainly no worse.

It was stated, but not officially, that caffeine was also given by the mouth during the night. The nourishment consisted of strong soup, eggs, and various stimulants. The bulletin in the evening was as follows:—

> 8 P.M.—This evening the symptoms of general depression are accentuated. Respiration more frequent and superficial. Pulse small, and sometimes imperceptible. Temperature subnormal. Intellectual faculties unimpaired.

After the publication of this bulletin Extreme Unction was administered.

On Tuesday, the 7th, the morning bulletin was as follows:—

> 10 A.M.—A sleepless and agitated night, but nourishment was better taken. General condition somewhat better. A change noticed in the [illegible] is a depression of the cardiac function, which has caused a delayed renal function, and cyanosis in the distal phalanges of the fingers and toes.

The treatment relied upon was the administration of digitalis, camphor, and expectorants by the mouth, and stimulating applications to the skin. Baccelli's symptom consists practically in the old succussio Hippocratis, with this exception—that the patient himself causes the splash of the effused fluid by repeating aloud the words "trenta tre," and it is not to be confused with the other symptom of Baccelli which consists in distinguishing between a serous and a purulent effusion into the pleura by means of the differences heard in auscultation of a whisper in these two conditions.

---

[1] THE LANCET, March 11th, 1899, p. 731.

The operation of paracentesis was performed a little before 1 P.M. After a preliminary cocainisation an exploratory puncture was made in the seventh interspace and the presence of a sero-sanguinolent effusion was ascertained. The needle of the Pravaz syringe was withdrawn and that of a Potain's aspirator was inserted and between 700 and 800 grammes of fluid were withdrawn in 20 minutes. A collodion dressing was then applied. The Pope was much pleased at the painlessness of the operation and complimented Professor Mazzoni, saying that he felt much relieved by it. At 2 P.M. the following bulletin was issued :—

> The exploratory puncture gave sero sanguineous liquid. Thoracocentesis was next performed, withdrawing about 800 grammes of liquid. After the withdrawal a rapid examination revealed mucous râles in the region of the lung first affected. His Holiness supported the operation very well, his *morale* has been improved by it, and the general condition seems better. He is now reposing.

On the same evening at 8.30 the following bulletin was issued :—

> The condition continues to be fairly satisfactory, as mentioned in the last bulletin. The functions of the heart and of respiration continue to improve slowly but gradually.

On Wednesday, the 8th, the following bulletin was issued at 10 A.M. after a consultation lasting one and a half hours :—

> The night was passed fairly tranquilly though without refreshing sleep. The pulse is frequent but regular, the respiration not so free as yesterday. The condition of the Holy Father does not permit of a long examination but permits of the statement that the pulmonary process is tending to resolution and that the pleural effusion is not being again poured out. The condition of the august patient, however, is not a tranquil one on account of the state of depression, which is increasing. During the night there seems to have been some difficulty in passing the urine, which depressed the Pope very much.

At 7.30 P.M. the following bulletin was issued :—

> The day has been passed tranquilly without attacks of weakness Pulse less frequent, regular, and a little more sustained. Respiration easy. The general condition is better.

Nourishment was taken several times during the day and consisted of meat grated in soup and some spoonfuls of claret, but hardly enough was taken.

On Thursday, the 9th, the following bulletin was issued at 9.35 A.M. :—

> The night has been a tranquil one and the august patient has reposed. The pneumonic process is in a state of complete resolution in that part of the lung which is not covered by the small quantity of fluids still remaining in the pleural cavity. The general condition continues to be better.

It was also stated, but not officially, that the cyanosis of the fingers was less and that the lips were of a better colour. The temperature ranged between 36·2° and 36 6° C. According to *La Tribuna*, the official organ, Dr. Guido Baccelli, the Minister of Agriculture in the present Cabinet, who is also professor of medicine in the University of Rome, stated to-day that he "was glad that his studies had been able to contribute to the diagnosis and treatment of the illustrious patient." This refers to the fact that he was the first to suggest the existence of fluid in the pleural cavity.

At the consultation held on the morning of the 9th it was decided to call in at the evening consultation as a physician consultant, Dr. Rossoni, the professor of special demonstrative medical pathology (performing functions almost exactly corresponding to those of a medical registrar), who also takes over the work of Professor Baccelli when his Cabinet duties do not permit him to do it. The Pope, when he was told of this by Dr. Lapponi, said that he was perfectly satisfied with his two medical attendants and asked why he should have a third. Dr. Lapponi explained that he thought it would increase the authoritativeness of the bulletins. The Pope answered that he did not insist and was grateful for their kindly thought. After the consultation was over the Pope became worse and it was decided to hold another consultation at 4.30 P.M. When Professor Rossoni was introduced the Pope, ascertaining that he was a Roman, asked him if he had studied under De Matteis, who had a ward in the Hospital of Santo Spirito and was the foremost exponent of the Roman school of medicine in his happy boyhood which he remembered so well. As this was about the year 1824 Professor Rossoni naturally replied that he did not remember him. The consultation lasted about an hour and after it, at 6 P.M., the following bulletin was issued :—

> The general condition of the august patient becoming somewhat worse during the day a consultation was h [illegible] there was also present Professor Rossoni. An [illegible] made and it was ascertained that the pleural [illegible] increasing. The sounds of the heart are weak, without symptoms of valvular lesions. Pulse easily compressible, 90. Respiration superficial, infrequent. Diuresis scanty. The condition of His Holiness may be considered as serious.

After the consultation the Pope asked one of his medical attendants : "Do you hope more or fear more?" showing his complete knowledge of his precarious condition.

Dr. Lapponi and Professor Mazzoni visited the Pope again at 10 55 P.M. and found that the general condition was unaltered. During the visit the Pope asked them what Professor Rossoni had said and asked to see the bulletin. To this quite unexpected question the answer was given that the bulletin was only issued in the morning and that it would then be laid before him. This has necessitated the printing of a special bulletin "ad usum Ponteficis."

On Friday, the 10th, when Professor Mazzoni and Professor Rossoni entered the room at 10 A.M. the Pope, who was sitting up, offered the latter his snuff-box and said that he did not feel quite so well, complaining in particular of a heavy feeling at the pit of the stomach. This, it is to be noticed, the Pope had also complained of just before the first operation. He then went back to bed again without any help and the operation was performed after a preliminary hypodermic injection of camphorated oil and hypodermic cocainisation. About 1000 grammes of a sero-sanguinolent fluid were withdrawn in the time of 20 minutes and on hearing the fluid being poured out of the aspirator into another receptacle the Pope said : "What a fountain." A microscopical examination of the fluid was rapidly made and there were found in it "many mononucleated corpuscles, a few multinuclear, many hæmatocytes. The presence of tubercle and of a thoracic tumour was thus to be definitely excluded." At 11 A.M. the following bulletin was issued :—

> The august patient passed the first half of the night with a certain amount of tranquillity but afterwards the difficulty of respiration and malaise increased and there was a greater sense of oppression. Pulse small, weak, 92. Complete apyrexia. Scanty diuresis. An increase of the endopleuritic effusion having been ascertained the indication for emptying is definite. A thoracocentesis was immediately performed by Professor Mazzoni. About 1000 grammes of sero sanguineous fluid were extracted. His Holiness supported very well this, the second, operation. After the operation the respiration and the strength of the heart suddenly improved.

At 9 P.M. the following bulletin was issued :—

> His Holiness has reposed during the day without pain. The pulse [illegible] ie strength of this morning after the [illegible] Respiration, 28; temperature, 36·4° C. [illegible] General condition unchanged.

On Saturday, the 11th, the bulletin was as follows :—

> During the night His Holiness has reposed at intervals. Pulse 90, its strength and compressibility being unchanged from last night. Respiration, 30; temperature, 36° C. Renal function always deficient. General condition somewhat better.

At 8 P M. the bulletin was as follows :—

> The day has been passed fairly tranquilly. The improvement in the general condition has permitted of the repetition of the physical examination of the thorax. The level of the slight amount of fluid remaining from the withdrawal (of fluid) performed yesterday has remained stationary. In the region above this level faint pleuritic friction sounds and a few mucous râles can be heard. Pulse less small and less weak. Pulsations, 86; respiration, 28; temperature, 36 9° C. The *morale* of the august patient is better.

The following bulletin was issued on Sunday, the 12th, at 9 A.M. :—

> The night has been passed tranquilly and several hours of sleep have improved the general condition of His Holiness. Pulse less small and a little stronger; pulsations, 82; respirations, 30.

The evening bulletin was as follows :—

> Nothing noteworthy in the course of the day. The general condition of His Holiness is unchanged. Pulsations, 86; respiration, 30; temperature, 36·8° C. A good night was passed.

At this point in the illness one of the medical men in attendance considered that a critical period might have arrived though the hope was necessarily very slender. But two days later the increasing weakness became manifest and for the next four days the bulletins bore but one construction —the strength of the patient was slowly failing. The pleuritic fluid, as it collected, was withdrawn by a Pravaz syringe, otherwise medical care was chiefly directed to the administration of nourishment. On Sunday, July 19th, the Pope fell into a condition of stupor, the long death agony being closed on July 20th. A few hours before his death he recovered consciousness and twice raised his hand in the act of bestowing the blessing.

The Pope was nursed throughout by his faithful valet, Pio Centra, and by Dr. Lapponi. While the windows of his room have only been opened for an occasional ten minutes in ie early morning, oxygen has been continually generated in ie next room in order to keep the atmosphere purer, tiated as it necessarily has been by the presence of many eople—cardinals, members of the Pope's family, and other itimates.

THE

ONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

(FROM A SPECIAL CORRESPONDENT.)

THE annual meeting of the Royal Institute of Public ealth was held at Liverpool from July 15th to 21st, under ie Presidency of the Earl of DERBY.

Those splendid municipal buildings, the St. George's Hall id the Walker Art Gallery, are admirably adapted for the irposes of a congress and were generously placed at the isposal of the institute by the corporation. The sectional [illegible] e near at the University College [illegible] adapted to the purpose. Some [illegible] Congress and inspected with great iterest the various municipal enterprises of Liverpool, such s the model dwellings, the sewage and water works, the ust destructors, and all the numerous undertakings which iark the great city as a thoroughly advanced and liberal-iinded place. Many neighbouring factories and works, uch as, in particular, Messrs. Lever's model village, were pen to view and the facilities so afforded were largely made se of. Warm praise must be accorded to Dr. E. W. Hope, he energetic medical officer of health of Liverpool, and the onorary general secretary of the Congress, for the admirable rrangements that were made for the instruction and entertainment of so numerous a company. Excursions to Chester nd Eaton Hall, Hawarden Castle, Northwich, and other laces of interest were arranged and well patronised, although he wet weather rather marred the general enjoyment.

THE OPENING MEETING.

The opening meeting was held on Wednesday evening, uly 15th, in St. George's Hall. Lord DERBY in his inugural address said that sanitation and the promotion of ealth were in the mouth of everyone, but he was not sure hey were not priding themselves too much upon the dvances they had made. He was not sure that on sanitary uestions after all they were so much in advance of some ations of antiquity and instanced as examples the Mosaic egulations of camp sanitary administration and the queducts and drainage systems of the Romans. As egards personal cleanliness some of the nations of the ast in many respects could hardly be surpassed. That isects might convey malaria appeared to have occurred o a Roman writer on agriculture Contrary to the general pinion, contrary to statistics, he doubted the halo of ealthiness thrown over the country as opposed to the towns. No doubt country life appeared to be ideal, but certainly n times gone by life in the best cottages was infinitely nferior to anything in the worst slums of the towns now. n conclusion, he remarked that science must progress hrough an interchange of ideas and by such congresses as he present one rays of light would surely be thrown where larkness had hitherto reigned. The Harben medals for 1901 ind 1902 were then conferred upon Sir Charles Cameron, C.B., and Dr. W. R. Smith, the President of the institute.

The meeting of sections commenced on July 16th.

I.—SECTION OF SANITARY ADMINISTRATION.

Sanitation of Congested Areas and Rehousing the Dispossessed.

Mr. TAYLOR, M.P., the President, in his opening address said that the housing question was one of the most important that the section, or, indeed, the whole Congress, had to deal with. The degree of congestion in cities varied and no longer should money be allowed to be wasted in curing [illegible] ounding belt [illegible] He would [illegible] a three mile limit outside their boundary. The first duty of a municipality was not to the artisan, but to the poorest poor who were ejected in the general interest.

Dr. JAMES NIVEN, medical officer of health of Manchester, read a paper on Rehousing the Poor on the Outskirts of Large Cities. He said it was generally recognised that an effort should be made by sanitary authorities to house as many as possible of the poorer working classes on the outlying parts of their districts under improved conditions as regards light, air, space, and construction. A great impulse had already been given to this movement by the development of electric trams. Touching municipal undertakings, he said that the main question was, How far could the workmen live from their place of employment?

Dr. SPOTTISWOODE CAMERON, medical officer of health of Leeds, discussed the Methods of Dealing with Unhealthy Areas. He pointed out that the first part of the Act of 1890 was intended specially for those cases where a very large area involved so much slum property that a general reconstruction of the district was necessary, while the second part dealt (1) with individual houses which were insanitary, (2) individual houses which were obstructive, and (3) smaller areas somewhat of the character of those in the first part. In many cases, he said, the removal of an obstructive building would let in air and light into an insanitary district, often with great advantage. Obstructive buildings were of two classes—(a) those which were used for habitation and were unfit; and (b) those which were either not used for habitation or were themselves fit for such use. The dealing with such obstructive buildings might be initiated by the medical officer of health on his own accou [illegible] householders of the district. Tl [illegible] are a report to the authority as [illegible] building and the cost of pulling it down and acquiring the land. This report it must ask for and must consider when made along with the representation. If it decides to act, copies of both are sent to the owner of the land, giving him an opportunity of stating his objections, after which the authority decides whether the building shall be pulled down. He then proceeded to give examples of the method of procedure.

Dr. R. S. MARSDEN, medical officer of health of Birkenhead [illegible] far outside [illegible] there in free [illegible] actice on account [illegible] l of over- [illegible] owners to make the houses [illegible] cy. A certain class, those [illegible] amounting, perhaps, to a [illegible] not be so dealt with; for [illegible] municipal lodging-houses. He referred to the admirable dwellings of this class designed by Mr. Turton of Liverpool.

Mrs. Councillor DOCKRELL of Blackrock said that she approached the question from the woman's point of view. Tenement houses were detrimental to family life and conducive to quarrels. It was an unfortunate fact that dispossessed persons rarely went into the new houses.

A joint meeting of the Congested Areas and Municipal Hygiene Sections considered the question of water-supply and a paper was contributed by Mr. PARRY, the Liverpool water engineer.

A Garden Village.

An object-lesson in connexion with the Congested Areas Section was given by the visit to Port Sunlight, by kind invitation of Messrs. Lever Brothers. This is a delightful "garden" village, the cottages of which are constructed in a charming and artistic style. Mr. Lever, who conducted the members, said that the village was no wonder at all. The whole question was the number of houses per acre. He thought that the maximum should be ten; if they got 20 the death-rate went up, and so on until they came to 50, when it became a congested area.

II.—SECTION OF PREVENTIVE MEDICINE AND VITAL STATISTICS.

The President of this section was Dr. SPOTTISWOODE CAMERON who in his opening address remarked upon the growing importance of preventive medicine. It was being realised that systematic inspection was far more effectual than waiting for complaints.

The Prevention of Consumption in a Large City.

Dr. NATHAN RAW, physician to the Liverpool Sanatorium for Consumptives, contributed a paper on the above subject. He pointed out that 2000 people died every year in Liverpool from tuberculosis and said that there were at present between 5000 and 6000 consumptives in the city. He pointed out that the disease was infectious, but only when ordinary sanitary and personal precautions were not observed, and urged that the patient in an advanced stage ought to be separated from other members of the family or removed to some suitable institution. In his opinion consumption was frequently conveyed to children by milk from tuberculous cows. He suggested, as far as Liverpool was concerned, that it would be necessary to appoint a tuberculosis committee under the control of the health department, working in conjunction with the general practitioners and charity organisations in the city. The institutions necessary to carry out this plan would be: (1) a centrally located office at which all consumptives might seek advice and where inquiries might be made by the committee; (2) a municipal sanatorium in some healthy district near Liverpool where the early cases might be treated, the patient to pay according to his means; and (3) a reception hospital for at least 100 incurable patients who could be removed from their surroundings and would no longer act as the most potent agents in distributing the disease. He thought that if a consumption colony could be established in some healthy locality near Liverpool where all poor and needy consumptives could be placed it would do more than anything else to stamp out this disease from the city.

This paper led to an interesting discussion.

Dr. W. G. WILLOUGHBY (Eastbourne) thought that the value of sanatoriums had been over-estimated.

Dr. HOPE disagreed with the last view and considered that compulsory notification could not at present be asked for.

Dr. SMITH (King's College, London) said that compulsory notification began at the wrong end. As regards sanatoriums, considering the number of consumptives the authorities were practically asked to build hospitals for incurables.

Sir CHARLES CAMERON (Dublin) was not convinced that compulsory notification was undesirable. Notification should not be compulsory, however, until it had definitely been decided by bacteriological examination that the case was one of tuberculosis.

Dr. W. J. R. SIMPSON (King's College, London), while doubtful as to the value of hospital treatment, thought highly of the suggestion of establishing colonies. Compulsory notification was the beginning of a serious attempt to grapple with this great national evil.

Dr. RAW, in his reply, said that from the scientific point of view there could be no doubt as to the advisability of compulsory notification, but since 200,000 poor working people suffered from consumption in this country such a course would dislocate a vast amount of domestic life. The disease ought to be put into a category by itself, isolation being needed only in the case of those incurable patients who could not in any way isolate themselves.

Underground Bakehouses.

Dr. T. W. N. BARLOW, medical officer of health of Bootle, read a paper upon the Requirements in regard to Underground Bakehouses. He remarked upon the difficulty in dealing with underground bakehouses and considered that medical officers of health should recommend standard regulations with regard to construction and lighting which might be modified in particular instances.

The Transmissibility of Infectious Diseases during the Incubation Period.

Dr. H. S. WILLSON (King's College, London) read a paper upon this subject. He said that in the vast majority of instances infectious diseases were not transmissible until the actual onset of symptoms, and this view was sufficient as a rule for practical purposes. But the rare exceptions were at least of scientific interest and might be important for preventive medicine. Opinions from various text-books and a few cases were quoted. The speaker then brought forward some bacteriological considerations and showed that diphtheria was undoubtedly infectious during the incubation period. He called attention to the fact that people might harbour the Klebs-Löffler bacillus for a considerable time—many days or even weeks—and eventually develop the disease apart from any fresh infection. He then distinguished between a "potential" and "actual" incubation period in diphtheria. The one might pass into the other and the patient be capable of communicating the disease during the whole period. He also brought forward reasons for believing that typhoid fever was capable of being transmitted apart from any symptoms and during the period of incubation. His conclusion was that as far as present knowledge went those in sanitary authority might neglect the possibility of infection during the incubation period in all diseases except diphtheria and typhoid fever. He urged the importance of provision for proper bacteriological investigation in all cases of suspected diphtheria and also for "contacts," and lastly considered that in the near future the same consideration would have to be given to the early bacteriological investigation of typhoid fever.

In the discussion which followed Dr. MARSDEN brought forward his physical theory that infection was a matter of wave length.

Dr. A. JOHNSTON (Glasgow) did not believe that infection during the incubation period ever occurred.

Dr. J. T. NEECH (Halifax) and Dr. BUTLER HOGAN (Tottenham) mentioned cases of small-pox in which they concluded that infection had occurred in the incubation period.

III.—SECTION OF BACTERIOLOGY AND COMPARATIVE PATHOLOGY.

The Value of Abstract Research to Practical Sanitation.

Professor RUBERT BOYCE, F.R.S., President of the Section, took the above subject for his theme in opening the meeting. He said that in a city like Liverpool where a new university had been created no pains should be spared to make the university not only the best equipped of its kind but also that its great departments should be so organised that they could be readily used by the city corporation, by district authorities, by the Chamber of Commerce, and by commercial firms seeking advice. They wanted on their part the advances which they made in science to be used to the full advantage of the community and in return they required the active support of the community. In Liverpool this inter-dependence had been fully recognised. He pointed out the value of a bacteriological department to the health department of a great city and he said that there existed in addition to the routine checking work a whole field of research in regard to plague, cholera, rabies, purity of water, &c., in which the community was directly interested and to the support of which it was asked to contribute directly. The relationship of bacteriology to the water engineer had also had ample demonstration, for that officer had to recognise that his worst enemy was a pathogenic organism. He now thoroughly recognised the significance of the colon bacillus and it was a remarkable step forward that probably every oyster merchant also realised the importance of freeing the beds from this pest. All this tended to impress on the community the absolute necessity of supporting, and keeping in touch with, scientific progress. It was splendid to see how citizens were coming more and more to the aid of men of science and were endowing cancer and other researches.

Interesting discussions upon the bacterioscopic analysis of water, the nature of the pseudo-diphtheria (Hofmann) bacillus, and the diseases of animals communicable to man followed, and several valuable papers were contributed.

(To be continued.)

MEDICINE AND THE LAW.

The Address of the President of the Medico-Psychological Association.

IN his presidential address to the Medico-Psychological Association Dr. Ernest W. White did not confine himself to any special subject connected with the care and treatment of the insane, but preferred to review the general situation by the light of events and statistics of recent date and to discuss changes and improvements either capable of being introduced by legislation and other means, or already projected. Among innovations with regard to which definite proposals are before the Legislature, the Lunacy Acts Amendment (London) Bill, introduced by Lord Carrington in the House of Lords, is regarded by Dr. White with some disfavour, although the principle which it seeks to introduce naturally commends itself to him. The object of this Bill is, according to its memorandum, to establish in various districts in London under the control of the County Council houses at which persons alleged to be lunatics may be received for preliminary examination and treatment. There are many defects in the present system whereby persons of unsound mind find their way, after preliminary detention in workhouses and prisons, into large lunatic asylums where the nature and probable duration of their derangement cannot be so well studied with a view to their future treatment as it might be in smaller institutions maintained expressly to that end. The memorandum of the Bill observes with regard to this, "It is claimed for the system proposed that it will be not only beneficial but economical in its operation by tending to lessen the number of persons detained as lunatics in the county asylums at the public expense, while it will be useful in assisting the classification of patients and the diagnosis and cure of mental disease in its earliest stages," and no one will dissent from the view that such a system efficiently worked may some day prove of practical utility. Dr. White, however, regards the proposals of Lord Carrington's Bill as tending to the institution of new hospitals for the insane in central metropolitan districts, and referred to a special report of the County Council, published in 1890, in support of this opinion. In the Bill itself there is little to justify the anxiety he expresses with reference to this, nor with regard to the manner in which he fears that the County Council will carry out the duties which it is now willing to undertake He asks whether there is any guarantee that the superintendent, who will also be resident medical officer, of the proposed receiving houses will have been properly trained in the treatment of mental diseases in a public institution for the insane, and also whether the visiting medical staff to be appointed will have had proper experience gained in public asylums. We hope and think that the London County Council are not likely deliberately to appoint ill-qualified persons to fill important offices of this kind, so that there is no need to anticipate the reverse in an Act of Parliament. Dr. White has a proposal to meet the difficulty of obtaining assistant medical officers at county and borough asylums, where it is known that the higher posts are few in number and that promotion must in consequence be slow and uncertain. He suggests that an assistant medical officer should be able to retire, "say at the end of five years, if he so desires, with a gratuity of £500, or at the end of ten years with one of £1000," and points out that any sum so earned will aid in the purchase [illegible] will mean the [illegible] disease throug [illegible] and borough asylums can see their way to carry out such a suggestion we have no doubt that they will find an increase in the number of candidates ready to come forward for the posts in question. Young medical men gain their qualification by a long and costly course of training and are not likely to disregard positions offering marked pecuniary advantages.

Refuse as a Nuisance.

An injunction was granted by Mr. Justice Joyce on July 15th restraining the Keymer Brick and Tile Company, Limited, from using rough ashes, rubbish, or house refuse as fuel so as to occasion a nuisance to persons in the neighbourhood of their brickfields or so as to be injurious to public health. The defendants purchased what they termed rough ashes, apparently London refuse containing ashes, and brought it by rail to their works, where it was screened, the ashes and breeze being used as fuel. The accumulation of dead dogs and cats and other non-inflammable matter caused the nuisance complained of and one of the witnesses, a gentleman keeping a preparatory school close by, spoke of the numbers of flies which were bred in the decaying matter and stated that he had caught some flies for bacteriological examination, evidence as to the result of which was given. The action was brought by the Attorney-General at the instance of the Chailey rural district council. In the course of his judgment his lordship said that the question was one of fact and not of law and that with regard to the law it was only necessary to say that in law a public nuisance need not necessarily be one injurious to public health. It was enough to show that it was a substantial injury to the comfort of persons within its sphere. He had nothing to do with the question whether the defendants could properly carry on their business in the place where they did so or with the difficulty of disposing of London refuse. He saw no reason to doubt that a serious and disgusting public nuisance had been created.

Coroners and Medical Evidence.

At an inquest held recently at Southend upon the body of a man found upon the beach with his throat cut there was no medical evidence forthcoming. A juror, who felt doubts as to whether the wounds upon the deceased could have been self-inflicted, asked for a medical opinion on the subject. The coroner thereupon expressed the view that none was necessary and the jury, in order to call attention to their dissent, nearly returned a verdict of "Found drowned." Upon this, the inquest was adjourned in order that medical testimony might be obtained, and a few days later a medical man gave evidence to the effect that death was due to the wounds in the throat and that the position and nature of these were consistent with their having been self-inflicted. With regard to the calling of medical evidence at an inquest *the jury were clearly within their right in asking for it*, for a verdict in all cases should be founded on evidence and on nothing else. The jury in deciding the cause of death are not experts and their "view" of the body is not such an examination as can enable them in any way to exceed their ordinary functions. The coroner has the responsibility of guiding them and helping them properly to appreciate the evidence before them. By the twenty-first section of the Coroners Act, 1887, where medical evidence has been given and the jury are not satisfied with it, they may require the coroner to call in further medical evidence and the coroner is bound to comply with this requisition. The end of the case in question was, however, a curious one, for the jury having no evidence before them pointing conclusively, in their opinion, to suicide, still refused to return a verdict to that effect. Nor did they find that the wounds were the cause of death and leave the method of their infliction open. They appear to have refused to adopt any reasonable course and finally returned a verdict of "Found drowned."

Spreading Infection.

At Clerkenwell on July 15th a man and his wife were prosecuted by the Islington borough council for publicly exposing and placing in a cab two children suffering from diphtheria and the woman was also summoned for exposing herself when suffering from the same complaint. The female defendant had taken the children to the Great Northern Central Hospital, had been told that they were suffering from diphtheria, and had refused the offer of an ambulance to take them to an isolation hospital. The hospital authorities appear to have informed the medical officer of health of the district where they resided, and he having traced them found that the family, including three healthy children and a grandmother, had gone by cab and train to Liverpool-street station where they were waiting on the platform for a train. Here, while the sanitary inspector was absent with the father, the woman and children managed to get into a train and started on their journey. After the railway authorities had had the train stopped the patients were detained at Maldon until they were well. Fines amounting to £5 4s. were imposed. The sanitary authority and the hospital are to be congratulated on their energetic and effective action in this case. It will be observed that the defendants, though able to afford cab and railway fares, were not above seeking medical advice from a hospital.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8677 births and 3894 deaths were registered during the week ending July 18th. The annual rate of mortality in these towns, which had been 14·3, 14·4, and 13·7 per 1000 in the three preceding weeks, further declined last week to 13·5 per 1000. In London the death-rate was 13·0 per 1000, while in the 75 other large towns it averaged 13·7 per 1000. The lowest death-rates in these towns were 5·4 in Bury, 6·3 in Hastings and in West Bromwich, 6·4 in Norwich, 6·6 in Aston Manor, 7·2 in Handsworth, 7·3 in Hornsey, and 7·4 in Croydon and in Willesden; the highest rates were 18·9 in Warrington and in Burnley, 19·1 in Rotherham, 20·1 in Great Yarmouth, 20 6 in Bootle, 20 9 in Rochdale, 21·4 in Middlesbrough, and 22·6 in Wigan. The 3894 deaths in these towns last week included 473 which were referred to the principal infectious diseases, against 429, 436, and 441 in the three preceding weeks; of these 473 deaths 170 resulted from diarrhœa, 95 from measles, 86 from whooping-cough, 49 from diphtheria, 36 from "fever" (principally enteric), 31 from scarlet fever, and six from small-pox. No death from any of these diseases was registered in Hornsey, Hastings, Bournemouth, Southampton, Reading, Burton-on-Trent, Wolverhampton, West Bromwich, Smethwick, Grimsby, West Hartlepool, Cardiff, or Swansea; while the highest death-rates from the principal infectious diseases were recorded in Coventry, Stockport, Birkenhead, Bootle, Wigan, Burnley, Sheffield, Rotherham, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Coventry, Nottingham, Wigan, Sheffield, Middlesbrough, and Merthyr Tydfil; from scarlet fever in Bootle; from diphtheria in Great Yarmouth; from whooping-cough in Walthamstow, Oldham, and Sheffield; and from diarrhœa in Walsall, Wallasey, Birkenhead, Liverpool, Bootle, Wigan, Bolton, Burnley, Leeds, and Rotherham. The mortality from "fever" showed no marked excess in any of the large towns. Of the six fatal cases of small-pox registered in these towns last week three belonged to Liverpool, two to Gateshead, and one to Manchester. The Metropolitan Asylums hospitals contained 71 small-pox patients on Saturday last, July 18th, against 67, 57, and 77 on the three preceding Saturdays; seven new cases were admitted during last week, against seven, four, and 31 in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 1644, 1646, and 1700 at the end of the three preceding weeks, had further risen to 1710 at the end of last week; 243 new cases were admitted during the week, against 234, 241, and 253 in the three preceding weeks. The deaths referred to the diseases of the respiratory organs in London, which had been 150, 164, and 127 in the three preceding weeks, further declined last week to 115, and were 44 below the number in the corresponding period of last year. The causes of 36, or 0·9 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Leeds, Gateshead, Newcastle-on-Tyne, and in 52 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Salford, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·1, 16·3, and 16·2 per 1000 in the three preceding weeks, further declined to 15·2 per 1000 during the week ending July 18th, but was 1·7 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·3 in Aberdeen and 12·4 in Perth, to 17·6 in Dundee and 18·9 in Paisley. The 497 deaths in these towns included 22 which were referred to diarrhœa, 15 to whooping-cough, 11 to measles, four to diphtheria, three to "fever," and two to scarlet fever, but not one to small-pox. In all, 57 deaths resulted from these principal infectious diseases last week, against 65, 58, and 82 in the three preceding weeks. These 57 deaths were equal to an annual rate of 1·7 per 1000, which was slightly above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 16, 17, and 31 in the three preceding weeks, declined again last week to 22, of which 15 occurred in Glasgow, three in Dundee, and two in Edinburgh. The deaths from whooping-cough, which had been 18 in each of the two preceding weeks, declined to 15 last week, and included six in Glasgow, three in Edinburgh, two in Paisley, and two in Greenock. The fatal cases of measles, which had been 13, six, and 13 in the three preceding weeks, decreased again last week to 11, of which six were registered in Glasgow, three in Edinburgh, and two in Paisley. The four deaths from diphtheria corresponded with the number in each of the three preceding weeks, and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 92, 86, and 90 in the three preceding weeks, declined again last week to 73 but were nine in excess of the number in the corresponding period of last year. The causes of 18, or nearly 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·3, 17·2, and 18·2 per 1000 in the three preceding weeks, declined again to 16·0 per 1000 during the week ending July 18th. During the past four weeks the death-rate has averaged 18·4 per 1000, the rates during the same period being 13·4 in London and 16·4 in Edinburgh. The 116 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 16 from the number in the preceding week and included six which were referred to the principal infectious diseases, against 13, five, and two in the three preceding weeks; of these, two resulted from scarlet fever and one each from small-pox, diphtheria, whooping-cough, and diarrhœa, but not one from either measles or "fever." These six deaths were equal to an annual rate of 0·8 per 1000, the death-rates last week from the principal infectious diseases being 1·5 in London and 1·6 in Edinburgh. The 116 deaths in Dublin last week included 24 of children under one year of age and 29 of persons aged 60 years and upwards; the deaths of infants were considerably in excess of the number recorded in the preceding week, while those of elderly persons showed a slight decline. Four inquest cases and three deaths from violence were registered and 53, or nearly one-half, of the deaths occurred in public institutions. The causes of nine, or nearly 8 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JUNE, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·0 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 5·9, 5·4, and 6·0 per 1000 respectively. The rates were considerably below the average in Paddington, Kensington, Hammersmith, Hampstead, Stoke Newington, and Lambeth; while they showed the largest excess in Fulham, St. Marylebone, Hackney, Finsbury, and Deptford. The prevalence of small-pox during June was slightly greater than that recorded in the preceding month; of the 68 cases notified during the month, 29 belonged to Lambeth, seven to Poplar, five to Wandsworth, four to Stepney, three to St. Pancras, and three to Battersea. The Metropolitan Asylums hospitals contained 57 small-pox patients at the end of last month, against 13, 47, and 60 at the end of the three preceding months; the weekly admissions averaged 12, against three, 12, and 13 in the three preceding months. The prevalence of scarlet fever showed a slight decline last month; among the various metropolitan boroughs this disease was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, the City of London, Deptford, and Woolwich. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1704, 1685, and 1738 at the end of the three preceding months, had further declined to 1614 at the end of last month; the weekly admissions averaged 195, against 208, 201, and 226 in the three preceding months. The prevalence of diphtheria showed no appreciable variation from that recorded in the preceding month; this disease was proportionally most prevalent in Fulham, St. Pancras, Hackney, Finsbury, and Deptford. There were 781 cases of diphtheria under treatment in the Metropolitan Asylums hospitals at the end of last month, against 903, 760, and 808 at the end of the three preceding months; the weekly admissions averaged 99, against 126, 105, and 120 in the three preceding months. The prevalence of enteric fever showed a continued increase last month; among the various metropolitan boroughs the greatest proportional prevalence of this disease occurred in Fulham, Hackney, Holborn, Poplar, Deptford, and Lewisham. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 92, 53, and 51 at the end of the three preceding months, had risen again to 88 at the end of last month; the weekly admissions averaged 17, against 15, 5, and 10 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, St. Pancras, Hackney, Holborn, Stepney, and Bermondsey. The 27 cases of puerperal fever notified during the month included four in Fulham, three in Wandsworth, three in Greenwich, and two each in Islington, Stepney, Bermondsey, Deptford, and Lewisham.

The mortality statistics in the table relate to the deaths

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1903.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small pox.	Scarlet fever	Diphtheria *	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,613,812	68	1208	724	—	157	2	27	468	—	2654	6·0	1	244	26	59	138	—	12	—	119	599	1·4	5705	12·9	91
West Districts.																										
Paddington	146,032	—	32	9	—	1	1	—	18	—	61	4·4	—	8	—	—	4	—	—	—	3	15	1·1	140	10·0	69
Kensington	178,409	—	30	27	—	3	1	—	17	—	78	4·6	—	1	3	5	3	—	1	—	1	14	0·8	199	11·6	62
Hammersmith	115,803	2	19	10	—	6	—	—	12	—	48	4·3	—	—	—	1	4	—	1	—	6	12	1·1	141	12·7	107
Fulham	147,780	1	38	37	—	22	—	4	14	—	116	8·2	—	1	1	2	2	—	—	—	9	15	1·1	155	10·9	76
Chelsea	74,169	1	12	18	—	1	—	1	6	—	39	5·5	—	—	—	—	4	—	—	—	—	4	0·6	101	14·2	106
City of Westminster	179,052	1	59	15	—	2	—	—	12	—	89	5·2	—	3	2	—	3	—	—	—	1	9	0·5	206	12·0	77
North Districts.																										
St. Marylebone	131,234	—	47	12	—	5	—	1	26	—	91	7·2	—	3	1	1	3	—	—	—	6	14	1·1	172	13·7	67
Hampstead	85,197	—	18	7	—	3	—	—	2	—	30	3·7	—	—	—	1	—	—	—	—	1	2	0·2	53	6·5	41
St. Pancras	235,716	3	59	49	—	3	—	1	34	—	149	6·6	—	41	—	2	5	—	1	—	2	51	2·3	332	14·7	103
Islington	339,137	1	90	59	—	5	—	2	23	—	180	5·5	—	30	1	4	10	—	—	—	7	52	1·6	450	13·8	104
Stoke Newington	52,069	2	12	5	—	2	—	—	2	—	23	4·6	—	—	—	—	3	—	1	—	1	5	1·0	52	10·4	57
Hackney	224,062	—	89	47	—	38	—	1	37	—	212	9·9	—	25	2	6	3	—	4	—	6	46	2·1	256	11·9	85
Central Districts.																										
Holborn	57,845	—	12	8	—	3	—	1	10	—	34	6·1	—	3	—	1	3	—	—	—	4	11	2·0	103	18·6	74
Finsbury	99,717	—	44	21	—	1	—	—	9	—	75	7·8	—	14	—	2	7	—	—	—	5	28	2·9	165	17·3	97
City of London	24,539	—	12	1	—	—	—	—	—	—	13	5·5	—	1	—	—	—	—	—	—	—	1	0·4	20	8·5	28
East Districts.																										
Shoreditch	117,513	—	28	13	—	3	—	—	11	—	55	4·9	—	16	—	2	1	—	—	—	4	23	2·0	163	14·5	132
Bethnal Green	130,028	—	31	22	—	1	—	—	16	—	70	5·6	—	14	—	1	4	—	—	—	2	21	1·7	207	16·6	103
Stepney	302,153	4	52	32	—	9	—	2	46	—	145	5·0	—	20	1	2	10	—	—	—	9	42	1·4	429	14·8	87
Poplar	169,550	7	32	34	—	9	—	—	18	—	100	6·2	—	10	1	5	6	—	2	—	10	34	2·1	221	13·6	131
South Districts.																										
Southwark	207,369	2	61	21	—	6	—	1	16	—	107	5·4	—	7	4	—	6	—	2	—	3	21	1·1	291	14·6	88
Bermondsey	129,801	—	35	11	—	2	—	2	29	—	79	6·3	—	4	1	—	10	—	—	—	7	22	1·8	222	17·8	138
Lambeth	307,711	29	60	22	—	3	—	1	27	—	142	4·8	1	9	—	—	9	—	—	—	6	25	0·8	379	12·8	84
Battersea	173,422	3	46	27	—	3	—	—	11	—	90	5·4	—	12	2	1	8	—	—	—	2	25	1·5	201	12·1	109
Wandsworth	249,678	5	57	37	—	6	—	3	12	—	130	5·4	—	8	2	2	8	—	—	—	3	23	1·0	239	10·0	66
Camberwell	265,562	1	53	40	—	6	—	—	34	—	134	5·3	—	1	—	4	12	—	—	—	7	24	0·9	281	11·0	105
Deptford	112,537	2	62	81	—	5	—	2	7	—	159	14·7	—	6	3	10	5	—	—	—	6	30	2·8	148	13·7	94
Greenwich	99,824	2	19	20	—	1	—	3	7	—	52	5·4	—	—	—	3	3	—	—	—	1	7	0·7	95	9·9	78
Lewisham	136,405	—	41	23	—	6	—	2	10	—	82	6·3	—	3	2	3	2	—	—	—	4	14	1·1	135	10·3	67
Woolwich	121,478	2	47	16	—	3	—	—	2	—	70	6·0	—	4	—	1	1	—	—	—	3	9	0·8	149	12·8	66
Port of London	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—		—

* Including membranous croup

of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending July 4th the deaths of 5705 persons belonging to London were registered, equal to an annual rate of 12·9 per 1000, against 15·9, 15·8, and 14·2 per 1000 in the three preceding months. The lowest death-rates in London last month were 6·5 in Hampstead, 8·5 in the City of London, 9·9 in Greenwich, 10·0 in Paddington and in Wandsworth, 10·3 in Lewisham, and 10·4 in Stoke Newington; the highest death-rates were 14·7 in St. Pancras, 14·8 in Stepney, 16·6 in Bethnal Green, 17·3 in Finsbury, 17·8 in Bermondsey, and 18·6 in Holborn. The 5705 deaths from all causes included 599 which were referred to the principal infectious diseases; of these, one resulted from small-pox, 244 from measles, 26 from scarlet fever, 59 from diphtheria, 138 from whooping-cough, 12 from enteric fever, and 119 from diarrhœa, but not one from typhus or from simple continued fever. The lowest death-rates last month from these infectious diseases were recorded in Kensington, Chelsea, City of Westminster, Hampstead, the City of London, Lambeth, Greenwich, and Woolwich; and the highest rates in St. Pancras, Hackney, Holborn, Finsbury, Shoreditch, Poplar, and Deptford. The fatal case of small-pox belonged to Lambeth. The 244 deaths from measles were 84 below the corrected average; among the various metropolitan boroughs this disease was proportionally most fatal in St. Pancras, Islington, Hackney, Finsbury, Shoreditch, and Bethnal Green. The 26 fatal cases of scarlet fever showed a decline of 50 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Kensington, City of Westminster, Southwark, Battersea, Deptford, and Lewisham. The 59 deaths from diphtheria were 106 below the corrected average number; among the various metropolitan boroughs the greatest proportional mortality from this disease was recorded in Kensington, Hackney, Poplar, Deptford, and Greenwich. The 138 fatal cases of whooping-cough showed a decline of 60 from the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Chelsea, Finsbury, Bermondsey, Battersea, Camberwell, and Deptford. The 12 deaths referred to enteric fever were only one-third of the corrected average number; of these 12 deaths, four belonged to Hackney, two to Poplar, two to Southwark, and one each to Kensington, Hammersmith, Hampstead, and Stoke Newington. The 119 fatal cases of diarrhœa were 42 below the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Holborn, Finsbury, Poplar, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was more than 39 per cent. below the average.

Infant mortality in London during June, measured by the proportion of deaths among infants under one year of age to registered births, was equal to 91 per 1000. The lowest rates of infant mortality were recorded in Kensington, Hampstead, Stoke Newington, the City of London, Wandsworth, and Woolwich, and the highest rates in Hammersmith, Chelsea, Islington, Shoreditch, Poplar, Bermondsey, Battersea, and Camberwell.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon R. H. Nicholson to the *Albion*. Staff Surgeon F. H. A. Clayton to the *Cressy*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant F. L. Henderson, from the Seconded List, to be Lieutenant. Dated July 7th, 1903. Lieutenant-Colonel H. J. Barnes is placed on temporary half-pay on account of ill-health. Dated July 18th, 1903.

Lieutenant-Colonel F. J. Jencken is appointed to the medical charge of the Detention Hospital at Longmoor, Woolmer Forest. Major H. P. G. Elkington is appointed Chief Sanitary Officer at Aldershot. Major R. Caldwell joins at Aldershot and is appointed to the Connaught Hospital for duty.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotion made by the Government of India:—*Bengal Establishment:* To be Colonel: Lieutenant-Colonel Samuel Browne, C.I.E. Dated April 10th, 1903. The King has also approved of the retirement from the service of the undermentioned officers:—Colonel Arthur Mudge Branfoot, C.I.E., Madras Establishment (dated May 19th, 1903); Colonel William Edward Johnson, Madras Establishment (dated June 30th, 1903); Lieutenant-Colonel Denis Peter Macdonald, Bengal Establishment (dated July 6th, 1903); Lieutenant-Colonel Albert William Denis Leahy, Bengal Establishment (dated June 5th, 1903); and Major William Grant Thorold, Bengal Establishment (dated April 15th, 1903).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Lieutenant E. U. Bartholomew to be Captain. Dated June 18th, 1903.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers):—3rd Lancashire: Alan Young Greenwood to be Surgeon-Lieutenant. Dated July 18th, 1903.

Rifle: 1st Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment): Thomas Sprot Allan to be Surgeon-Lieutenant. Dated July 18th, 1903. 21st Middlesex: Surgeon-Captain E. Jones resigns his commission. Dated July 18th, 1903. 3rd London: Surgeon-Lieutenant G. W. O'F. Clark to be Surgeon-Captain. Dated July 18th, 1903.

THE COMMEMORATION OF THE KING'S BIRTHDAY.

The editor of the *Household Brigade Magazine* is entitled to great credit for the special number[1] which has been issued in commemoration of the birthday of King Edward VII. This journal is ordinarily published for the benefit of the non-commissioned officers and men of the Household Brigade, but the special number appeals not only to the army but to every loyal subject of the King. It consists of some 80 pages of letterpress and illustrations bound in an artistic cover and contains as a supplement a very good reproduction of an autograph portrait of His Majesty. Among other illustrations will be found reproductions of portraits of Prince Edward of Saxe-Weimar, Lord Chelmsford, Lord Wolseley, the Duke of Cambridge, the Duke of Connaught, and Lord Roberts, each of which is accompanied by a letter and autograph. Sir Henry Irving, of whom there is also a portrait, writes an appreciative article on "Mr. Atkins and the Stage," but the eminent actor finds that military discipline occasionally conflicts with the conditions of the drama, for the soldier on the stage never looks surprised, and "when the principal actors are in a scene of great emotion it is a little disconcerting to be surrounded by impassive faces which seem to say to the audience 'Don't mind 'em, they often take on like this, but we're used to it.'" "Our Kings at the age of Sixty-one," "The Cemeteries of the English Guards at Bayonne," "Football in the Army," "Boxing in the Army," and "Soldiers who Race," are some of the titles of the other articles. Of special interest to medical readers is the article on the Army Medical Service from a Civilian Standpoint from the pen of Dr. H. H. Tooth, C.M.G., the burden of which is that the Army Medical Service "is a highly honourable calling, offering opportunities for distinction and honours, and combining in a sense the advantages of two professions." Mr. Rudyard Kipling and Sir A. Conan Doyle both contribute autograph letters, and that excellent cartoonist "F. C. G." sends a fancy portrait of Lord Roberts in the character of St. George, Mr. Kruger as a tortoise taking the place of the dragon.

THE LATE DEBATE ON THE ARMY ESTIMATES.

The late discussion of the Army Estimates in the House of Commons was of a somewhat heated nature. Although much of it was discursive almost to irrelevancy and some of it, as might have been expected, rather abusive, Mr. Brodrick was not unequal to the occasion and some important business was done. There was little or nothing of medical interest, however, in the discussion. The War Minister took on the whole an optimistic view of things and claimed patience and fair consideration for his new Reorganisation Scheme. It would be premature, however, to proffer any opinion on this scheme until we know whether the requisite number of recruits, and of the right stamp, will be forthcoming In one important matter a compromise has been arrived at There is to be a permanent South African contingent, which will practically amount to an army corps, maintained in that country There is no doubt much to be said in favour of this measure on the score of training and military efficiency The climate is naturally a fine and healthy one, but a great deal will have to be done in the way of accommodation for the troops and sanitation, as well as sanitary administration, in order to keep them healthy and effective

---

[1] The Household Brigade Magazine. Special number, June 26th, 1903. Price 2*s.* 6*d.* Published by Messrs. Keliher and Co., Limited, 99, Victoria-street, S.W., and 33, King William-street, E.C.

PRINCESS LOUISE HOSPITAL, ALTON, HANTS

Princess Louise (Duchess of Argyll) accompanied by the Duke of Argyll and Lord Roberts, visited the Princess Louise Hospital at Alton, Hants, on July 16th The hospital, which was erected partly by public subscription and partly through the generosity of the proprietors of the *Daily Mail*, consists of three blocks of ten wards which are 55 feet long by 20 feet wide and contain beds for ten patients During the course of luncheon the Duke of Argyll remarked that the hospital was another instance of the intense patriotism that always pervaded the British press He thought that the patriotism of the British press might do one more thing and that was to give a prize for the best equipped ambulance and carrier for service in the field Subsequently Princess Louise presented to nurses of the hospital staff the King and Queen's medal for South Africa and Her Royal Highness was afterwards conducted over the hospital buildings by Lieutenant Colonel Rainsford, R A.M.C. Lord Roberts expressed great satisfaction with the arrangements of the hospital

GIBRALTAR · ITS SANITATION AND ITS NEW WATER-SUPPLY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

AFTER the International Congress of Hygiene and Demography held at Madrid in 1898 I was able to visit Gibraltar and I described the improvements that had then been effected. Formerly Gibraltar was anything but a healthy town The climate is not good and the sanitation was worse Thus for the 16 years terminating in 1866 the average annual death rate amounted to 29 25 per 1000 of the population, but during that year all Europe was alarmed by a serious epidemic of cholera and from that time energetic efforts have been made to deal with sanitary matters As usual, these endeavours have been rewarded by a notable decrease in the death rate, the average annual death rate for the ten years ending in 1901 amounting to only 20 65 per 1000 During the last two years, however, these conditions have not been maintained In 1901 the death rate was 22 54 per 1000 and in 1902 it reached the high figure of 23 10 per 1000 This is attributed to the exceptionally unfavourable climatic conditions, the greatest number of deaths taking place during the worst months of the year—namely, in February and March Then there was also a bad epidemic of measles, so that the zymotic death rate rose to the very high proportion of 4 66 per 1000 of the population Undoubtedly this prevalence of zymotic diseases was mainly caused by the principal remaining sanitary defect of Gibraltar This defect, as I explained five years ago, is in
a great m
reasons
an import
fortress, and even to day its fixed civilian population does not amount to more than 17,373 British subjects and 2982 resident aliens Between the commercial instincts and interests of the civil population and the purely military
purpose of
resulting in
which of c
want to rai
the available ground, but such structures would mask the batteries and be in the line of fire so they are forbidden, and therefore the houses remain low and small On the other hand, the commercial enterprise of the place and the openings for trade attract many persons of all conditions, from the poor Spanish labourer to the wealthy Levantine merchant. As Gibraltar is a fortress and not an ordinary colony the right of residence can be refused to foreigners and it is only in exceptional circumstances that permission is granted. But British subjects cannot be excluded It takes, however, but a short time to reach the Spanish lines on foot and costs only a few pence to go to Algeciras by steamer; therefore several thousand workmen and labourers cross every day to Gibraltar and yet do not live there. But the native born workmen and workmen from Malta, being British subjects, cannot be sent across the Spanish lines every evening and they have a right to remain in Gibraltar and claim to be housed there This it is that causes the main difficulty The overcrowding problem, acute everywhere, is particularly complicated at Gibraltar, for it can readily be imagined that in the event of another siege the smaller the number of private houses and of the civil population the easier it would be to defend the place, therefore the military authorities endeavour to keep the population down and to prevent the building of more houses As, however, it is easier to forbid the erection of a new house or the enlargement of an old one than to prevent the increase of population the overcrowding of such dwellings as exist is the natural consequence Therefore when measles or other infectious diseases occur they spread rapidly amid the over-populated and poorer districts

Putting aside the question of overcrowding as a grievance for which no remedy has been found—and one that increases rather than decreases—it may fairly be said that in most other respects there has been a marked improvement. The general health of the population therefore has greatly benefited and this is especially remarkable in respect of that peculiar local fever for which Gibraltar had acquired an unenviable notoriety This sort of remittent fever, which sometimes produces a temperature of 105° F and has often been described by Dr W Turner of the Civil Hospital, had almost become extinct He considers that, speaking roughly, its frequency must have decreased during the last 20 years in the proportion of about 90 per cent Formerly Dr Turner used to attend about 60 cases of "Rock fever" during the course of the year and now he does not see more than three cases or so in the 12 months This marked improvement he attributes to better sanitation, to the prolongation of the main sewer to Europa Point, to better house drainage, to the care taken in re arranging, trapping, and ventilating the house drains, to the better paving and scavenging of the streets, to the great improvement in the water supply, and to the more strict supervision of the food- and the milk supplies

The most remarkable of the great works undertaken of late years is that of the water supply Formerly the inhabitants gathered what water they could from the roofs of the houses and kept it in tanks below the houses, they also had private wells, though this latter supply was often brackish Of course there was every danger that such water would be contaminated On the slope of the rock a catchment area measuring some 21 acres had been marked off and reservoir tanks were constructed near the remains of the old Moorish castle which had a storage capacity of 1,257,444 gallons. This water was sold to the inhabitants at the rate of ten gallons a penny, but during the dry season the supply was exhausted and was replaced by distilled sea water which was sold at five gallons a penny So unsatisfactory was this state of affairs that on the occasion of my last visit in 1898 a plan had been adopted for covering the catchment area with concrete so that none of the water should be lost and for tunneling into the rock so as to construct therein huge reservoirs capable of storing 5,000,000 gallons of water This great work has been completed and a still greater undertaking is now in hand.

The necessity of large reservoirs for the storage of water is caused by the nature of the climate. The average annual rainfall is 33 3 inches, but it varies from a maximum of 77 inches to a minimum of 15 inches, so that it is necessary to store water from one year for the following year. Conse-
uly, 1898, miners set to work to scoop out of the
our great reservoirs identical in size and situated
The work was soon accomplished and on my
ibraltar this year I was able to visit these very
remarkable reservoirs After ascending the rock for some 300 feet the author of this bold scheme, Mr. W. Wallace Copeland, C E., the secretary and engineer of the Gibraltar sanitary board, led me through a very unpretentious doorway into a small building where four gauges on the wall indicated how much water there was in each of the reservoirs. Here also were the engines and air-condensing machines that provide the power required for drilling into the rock.

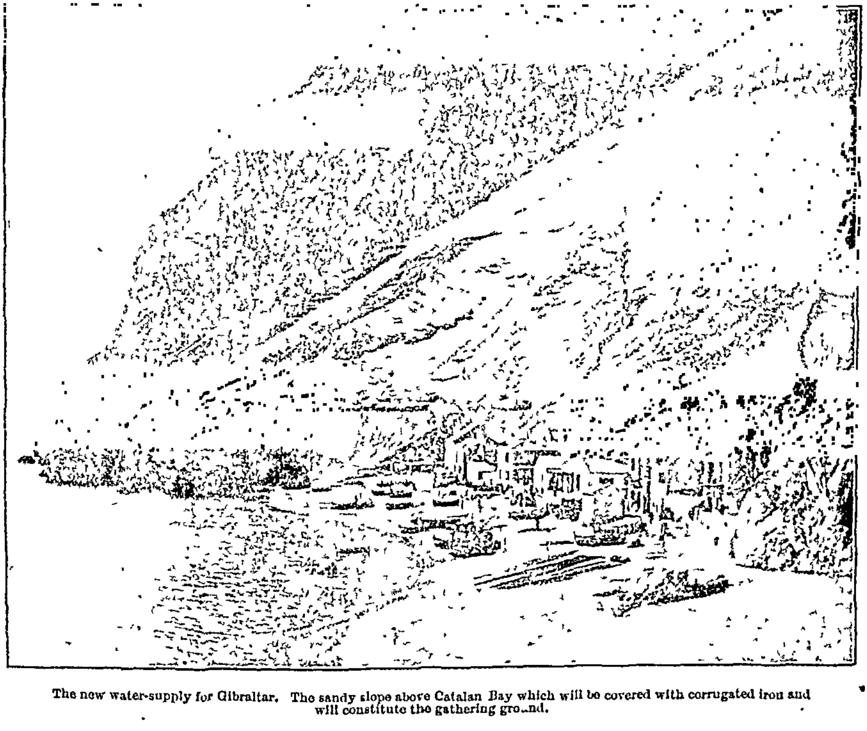
To visit the reservoirs there are a small entrance and ladders to descend. These reservoirs are at their lowest part 340 feet above the sea, they are 201 feet long, 51 feet deep, and their average width is 22 feet. Of course it is pitch dark, but there is a system for conveying electric wires to the farthest extremity so that the whole can be illuminated and a strangely weird effect is produced. The reservoir which we first visited contained 30 feet of water and a small collapsible boat provided us with the means of rowing round this lake which has been built within the rock. The next reservoir visited was quite empty and it was a long climb down the ladders to get to the bottom and thus to realise the great depth and length of the space necessary to hold one and a quarter million gallons of water. It is easy to talk in millions but very difficult to grasp and really to understand what a million means. Here, in any case, we have an object-lesson and can measure with the eye the cubic capacity of more than a million gallons. Yet to let out this vast volume of water a pipe only four and a half inches in diameter is used. The pipe that lets the water in is at least a foot in diameter, for when it rains the water comes down quickly. As it enters from the top of the reservoir it would make a waterfall that would soon damage and disintegrate the stone, so the pipe is prolonged to the bottom and is there curved round, forming a syphon. Thus the water falls on water and comes out with an upward current that presses against water and not against the walls or other hard substance. In this manner there is no shock. Nevertheless it is necessary to have a portable boat that can be taken to any of the tanks so as to watch the walls and to repair them when the damage is on a level with the water, otherwise it would be necessary to construct a scaffold within the tanks.

The gathering grounds which feed these reservoirs are carefully hedged round with barbed wire to prevent goats and other animals getting in. At the same time there is nothing to attract them. Not only has all trace of earth been removed but every crevice or fissure in the rock has been filled up with cement to prevent any lodgment of seeds or growth of any sort. Thus there is, as it were, a bald patch on the surface of the great rock and this constitutes a perfect gathering ground for pure rain-water. At the lowest extremity there is a trench to collect the water which sometimes comes down with such violence that it has been found necessary to build a wall to prevent it from splashing over. At the lower end of this trench stones closely packed have been introduced so as to act as a sort of clarifying filter, but when there is a great downpour the water is likely to leap over these pebbles. This does not matter, for it is only the first downpour of water which has washed the bare surface of the rock that needs a little clarifying. In practice the water when it reaches the reservoirs is very clear. The only thing which it has been found impossible to exclude is an occcasional olive leaf; these are so light that they float over every impediment. After passing through, and sometimes over, the pebbles the water from the gathering grounds enters a large iron pipe that passes over, and in front of, the reservoirs. Branch pipes and valves control the distribution of this water so that it may be discharged into one or more of the reservoirs. Thus the water in one reservoir may be kept quiet and untouched for some months, while another reservoir may be emptied completely so as to be cleaned out. The great object is to keep the water as it is kept by nature—that is, far away from the fluctuations of temperature or light. Even those parts of the reservoirs which are nearest are more than 50 feet away from the surface of the rock. Thus the water is not only stored well away from the effect of light and heat but it is quite safe in case of bombardment. After remaining for 12 months in one of these reservoirs the water was found to be unaltered. There was a little slime at the bottom but no animal life. Nevertheless, after drawing the water from these reservoirs and before it is allowed to flow into the distributing tank it is filtered. For this purpose there is a bed five feet deep packed with sand and polarite. When the water has passed through this filtering medium it is aerated by falling in a spray over a ledge to a depth of 40 feet. After this filtering and aerating process the water is invariably found to be perfect. Even then, the water is systematically analysed every month and after every downfall of rain. Mr. G. A. Albrines, F.C.S., M.S.P.A., is intrusted with the work of analysis. When the great reservoirs are closed in an air channel has to be provided so that air may pass in or out as the reservoirs fill or empty, but to prevent any contamination several air screens and one asbestos air filter have been placed in each of these air shafts. Thus neither dust nor flies can be drawn into the water reservoirs. Then their position, high up and within the bare rock and at a considerable distance from any dwellings, is exceptionally favourable. Indeed, these four lakes, artificially and promptly made right in the centre of the rocky mountain, are really marvellous and have an air of mystery about them that is most facinating. There are the small cave-like entrances leading to the vast deep lakes within, while without and around we have the exquisite but neglected beauty of innumerable wild flowers that wave gracefully over the surface of the majestic rocks. Below stretches the broad expanse of the blue waters, bounded on one side by the green hills of Algeciras and on the other by the towering form of Gibal Moussa which, like a natural fortress, frowns from the northern shores of Africa. Here on this rock side, but well away from the scorching rays of the sun and safe from shot and shell, can be stored 5,000,000 gallons of water. Thus when the supply is abundant some can be kept over for the next year when there may be a drought and can thus be stored in a manner which will prevent deterioration. Such was the scheme conceived some six years ago and now fully realised. It was at first thought that this supply would suffice, and so it would if it were used for drinking purposes only. For sanitary purposes—the flushing of drains and the watering of streets—there is another supply. This is obtained from the sandy plain at the foot of the perpendicular portion of the rock known as the North Front. With the aid of Worthington's condensing engines this water is pumped up to the waterworks near the Moorish tower into tanks that are 250 above the sea. This is known as the sanitary water and by gravitation it flows to all the houses. It is a brackish water so there is no danger of anyone drinking it. The amount of salt it contains varies according to the season of the year and when at its worst it contains 600 grains of salt to the gallon. The sea water at Gibraltar contains more than 2000 grains of salt per gallon. The sanitary water, though salt, is free from all deleterious organic matter and can be used for bathing purposes.

Now that the public water-supply has been so largely augmented the dangerous private wells sunk in the red sand on which the town is built have been closed. The authorities here possess absolute powers which do not exist in England and therefore were not only able to close the old supplies but to regulate the quantity that the inhabitants must take of the new supply. Thus they are compelled by law to take ten gallons of sanitary water per day for each person so that there shall be sufficient to flush the drain-pipes satisfactorily and to keep the habitations thoroughly clean. By combining the use of brackish water with that of pure water and building reservoirs for 5,000,000 gallons of drinking water it was supposed that means had been found to cope with the irregularities of the rainfall and that the problem of the water-supply was solved. But in this calculation no account was taken of the new dock works and the probable demands of local industries. As soon as the authorities found that they had more water at their disposal they also discovered that they could sell it advantageously. All persons who had engines were willing to pay for the drinking water instead of using brackish water for their boilers. This applied not only to steamships but to the great number of engines employed at the new dock works. Then there were mineral water manufacturers and others who all wanted pure water. Thus, instead of reserving water in case of drought the authorities found that they had sold far beyond the very last drop of the maximum supply and that they would be obliged to make up the difference by distilling salt water; indeed, they calculated that the demand for pure water has increased eight-fold within the last few years.

To meet these new and unforeseen exigencies another appeal was made to the inventive genius of Mr. Copeland. The result has been a proposal which for its bold daring is only equalled by the readiness with which it was approved, adopted, and put into execution by the authorities. In England or, for the matter of that, in France and in most countries such a proposal would have been debated for years before a single step was taken towards its execution. The back or east side of the rock is so precipitous that there are only two places where a landing can be effected. A good road from the North Front leads to the first of these, known as Catalan Bay, but there is only a path over the sands to the next, called Sandy Bay, and it is not possible to go any further. At Catalan Bay there is a small fishing village and above in the rock there is much quarrying work done to supply the stones for building the new docks. But on the further side of the village there is a sort of indenture or scooping out of the lower portion of the rock which is filled up with beautiful soft sand. This sand presents a smooth though somewhat moveable and unstable surface. Now Mr. Copeland conceived the idea of laying over this sandy surface a wooden framework and affixing to it a corrugated iron roofing. This would constitute a perfect gathering ground far above any habitation and on which no vegetation could grow. Then to bring the water to Gibraltar he proposed to pierce a tunnel right through the rock. Nor would this be such an extravagant process as it might seem at first sight, for the tunnel might be utilised not only for conveying the water but also as an extra reservoir. The tunnel would be 2025 feet long and would measure 10 feet in height and seven feet in width But the idea is to enlarge this tunnel for the greater part of its length and to create an elongated reservoir which will hold 17,000,000 gallons. When this is done the water difficulty will be settled for ever. Already at the time of my visit a great part of the tunnel had been pierced and it was hoped that the miners would get through the rock in the course of the month of July. The tunnel, it was estimated, would be in a condition to receive and to convey the water through from Catulan Bay to Gibraltar town by next September. At first it is proposed to cover only ten acres of the sandy gathering ground with corrugated iron roofing, but there are altogether 40 acres available for this purpose.

With the very courteous assistance of Mr. Copeland I was able to visit in detail this gigantic enterprise. On the Gibraltar side I penetrated the tunnel to a distance of 733 feet and had then more than 700 feet of rock above my head. Yet even here water was still oozing through, showing the porosity of the rock. The drilling machines are worked with air compressed to 80 pounds to the square inch and its expansion in the tunnel helps to cool and to renew the atmosphere. If steam instead of compressed air were employed this would be injurious. But the dynamite explosions which have to be produced so as to shatter the rock create very poisonous gases which cause the men to vomit and their lives can only be saved by prompt removal to the outer air. Therefore iron pipes or shafts are put down in the tunnels and carried close to where the explosions take place. At the mouth of the tunnel an oil engine causes a Blackman's fan to revolve and thus fresh air is pumped promptly and in large volumes into the tunnel so as to render the work quite safe. On the Catalan Bay side the same precautions are taken and I was able to see for myself the admirable situation of the new gathering grounds. Altogether this bold scheme is progressing rapidly and will ultimately give Gibraltar, its trade, and its shipping more pure water than it is likely to need. Therefore full provision will then be made to meet the demand during exceptionally dry seasons. Mr. Copeland, as the engineer who has devised this scheme, and the authorities who have had the courage to carry it out almost as soon as it was proposed, are to be congratulated; they will certainly win the gratitude of all who are concerned in the welfare of "The Rock."



The new water-supply for Gibraltar. The sandy slope above Catalan Bay which will be covered with corrugated iron and will constitute the gathering ground.

REVACCINATION OF TRAMPS.—As a precaution against small-pox the Christchurch (Hampshire) board of guardians recently resolved to try the experiment of having all the tramps who visited the workhouse medically inspected and, if they consented, revaccinated. The plan was tried for one month but none of the tramps would consent to the operation and the experiment, which cost the guardians about £10, was abandoned.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—Two remarkable letters under the above heading have appeared in your recent issues. One is by Dr. G. Archdall Reid (July 4th, p. 56) who asserts that evolution is caused by injurious agents eliminating the unfit, and the other is by Dr. J. Wiglesworth (July 18th, p. 186) who denies the arguments and conclusions of Dr. Reid. As both cannot be right one or both must be wrong.

Dr. Reid begins by stating that the theory of the transmission of acquired traits is now generally abandoned, but that a great many still believe (of whom he is not one) that the effects of poisons and privations on the parents affect the future offspring by their effects on the germ cells through the medium of the blood. The argument is used that the germ cells, like other body cells, must be injured by a poison such as lead, for example, and thus since the germ cells are injured the future offspring must be injured in a like manner. Now it must be noted that Dr. Reid does not deny that the germ cells may be injured by a poison or any other injurious agent; what he does assert is that it is difficult to believe that the descendants of such damaged germ cells should still continue to perpetuate the injury done long after the injurious agency has ceased to act; for if this were so in cells other than germ cells then there could be no true recovery from illness, and if it is not so in the body cells then it may be asked, why should the injury done long ago be perpetuated in the descendants of the germ cells? Further, Dr. Reid points out that asexual reproduction results in exact copies of the parent, whereas the offspring of sexual reproduction always differ more or less from the parents and from one another; that is, sexual reproduction, however it brings it about, is the cause of variation, and thus it is that many biologists have concluded that external agencies have little or no influence on offspring subsequently produced. Of course, as Dr. Reid has pointed out elsewhere, variation must in the last analysis be the result of acquired traits, but that is not the question involved here. Again, if acquired traits are transmitted and thus become variations in the second generation from the parents, then certainly all acquired traits are not transmitted—e.g., the wrinkles on the brow of an old man who has become a father or the distorted foot of a Chinese woman. With reference to alcohol and toxins, if injury is caused to the future offspring by the action of these agents on the germ cells, then this degeneracy, variation, or inborn trait is caused by an external agent circulating in the blood, and as variations are transmissible to future generations, and as these variations can either by natural or artificial selection be rendered stable in the race, it is thus that new species are evolved and the unfit individuals are eliminated, for if the offspring are injured through the germ cells by poisons circulating in the parents' blood, and as this would be a variation, and as this variation would accumulate in future generations, it follows that these future generations would become more and more degenerate in the case of alcohol so as at last to lead to extinction. If, however, these injurious agents, whatever their effect may be on the germ cells, do not affect the future offspring, and as they tend to eliminate the unfit—for example, in malaria, phthisis, alcohol, &c.—the result will be that the race will become more and more resistant to them, and this is simply natural selection. Man has undergone evolution, as is evidenced by his size, colour, and hair, but he is still evolving with regard to disease and especially so with regard to alcohol. Samuelson in his "History of Drink" has pointed out that races that have had a prolonged acquaintance with alcohol are the soberest on earth—e.g., Jews, Chinese, South Europeans, West Africans, &c.—and that this sobriety is in exact proportion to the past experience of the alcohol. The same is to be said of disease; each race is resistant to disease in exact proportion to its past sufferings from it—e.g., phthisis in Great Britain, malaria in West Africa, &c. Races that have had no past acquaintance with alcohol or infectious disease are quickly eliminated when brought into contact with them—e.g., the South Sea Islanders with phthisis and Red Indians with regard to drink. I trust this is a fair presentation of Dr. Reid's arguments—at least I believe it is as fair as could be achieved with the limited space I have allowed myself.

Dr. Wiglesworth, in his letter to you, represents Dr. Reid as asserting that the germ plasm is incapable of receiving permanent injury by the agency of poisons circulating in the blood. For this statement of Dr. Wiglesworth there is not one iota of justification. What Dr. Reid did say was, "Even if the germ cells are injured it does not follow that this injury will be perpetuated in their *very* remote descendants—i.e., in the *body* cells of the child—at a time long after the injurious agency has ceased to act." Dr. Wiglesworth concedes that the main cause of variation is bisexual reproduction but holds that there *may* be other causes. Certainly; other causes have been held, such as the accumulation and transmission of acquired traits. In support of this theory can Dr. Wiglesworth, or any other, advance one indisputable instance of the transmission of an acquired trait? Of course, it must be understood that we are at present dealing with multicellular organisms, for it is possible that in the unicellular world natural selection is by the accumulation and transmission of acquired traits, for example, the conversion of small-pox into vaccinia by passing the virus through the cow. It is not necessary to suppose, as Dr. Wiglesworth seems to think others do, "that the germ plasm is wholly uninfluenced by being placed in an adverse nutritional environment, such as must exist when alcohol or other poisons are circulating in the blood," nor yet that the germ cells "should be exempt from the operation of biological laws" (whatever they are), "and that the nature of the nutrient medium by which they live is of no consequence to them"; nor, again, "that recuperation in damaged germ cells must inevitably occur"; nor that it is a matter of indifference as regards the well-being of the offspring whether these are born of dissolute parents whose tissues are soaked in alcohol or of these same parents whilst living physiologically correct lives. Dr. Wiglesworth comes to closer grips with the question and confines his arguments to the action of alcohol as observed in the individual and in the race. He proceeds to refer to statistics of his own, tending to prove that parental drinking is a cause of filial drinking as well as of filial insanity. In a large number of those who are victims of nervous complaints, such as insanity, he finds a history of drinking in the parents Exactly so; and in another large number there is no history of parental drinking; in another where the parents have been drunken there is no insanity. Does this prove anything? If alcohol can damage the adult brain—and no one I think will question the statement—is it not as likely to damage the growing brain of the embryo? Here, however, Dr. Wiglesworth does not attempt to distinguish between variation and an acquired character. That the germ cells may be damaged by parental drinking is one thing but it is quite distinct from the damage done to the growing embryo by the habits of a drunken mother during her pregnancy. Unless Dr. Wiglesworth does this his statistics are worthless or at least cannot be relied on. If the injury is done during the growth of the embryo it is certainly not a problem in heredity. If, however, the germ cell is damaged by the alcohol and the offspring developed from these cells are more drunken than they otherwise would have been, or mentally weaker than they otherwise would have been, then it is a variation or inborn trait, and as these tend when transmitted the race would tend to become more and more drunken or more and more insane and thus tend to extinction. No doubt it would be difficult if not absolutely impossible to separate the acquired part of the alcoholic diathesis from the inborn, for the child can have no more recollection of the parent's gratification with alcohol than it can of his gratification with green cheese. If, however, the problem seems insoluble when applied to the individual it is not so when applied to the race. The Chinese, for instance, are one of the most sober races on the face of the earth; 3000 years ago they were one of the most drunken. Evolution has proceeded here in making them more tolerant of the action of alcohol or of avoiding it or both. Certainly it has not tended to make them more drunken nor insane. Races that have had no acquaintance with alcohol until recently are the most drunken on the earth and surely here filial drinking cannot be charged to the parents. Dr. Wiglesworth proceeds, however, to say that the case of alcohol is not parallel with disease, for in disease, he says, it is the younger units who are wiped out. Is this so with syphilis? He also says that alcohol comparatively seldom destroys the individual until after the procreative faculty has been more or less exercised. This certainly must happen very, *very often*, but *perhaps not* so often as Dr. Wiglesworth thinks. Even if the parent escapes, are we so sure that the child will escape also? It is surely notorious that men and women as a rule are disinclined to wed those who have become drunken. Notice must also be taken of the vast numbers of children born of drunken parents—and who, presumably, would have the inborn desire for indulgence in alcohol—who die an early death because of neglect and injury. Here nature is at work eliminating the unfit even if she has missed the parent. Dr. Wiglesworth does not believe that there is sufficient historical evidence to suggest that every member of any community has been so completely saturated with alcohol as to preclude any germ plasms existing untouched by this poison; can he name one race now sober which was not at one time very drunken? Or can he name one which had no acquaintance with alcohol once not now drunken? But what does his question amount to? Unless he can prove that the future offspring derived from germ plasm once damaged by alcohol is also damaged it has no bearing on the question of the evolution against drink. Nevertheless, as man differs immensely in his desire for alcohol there must also have been a difference, however slight, in the beginning, else the whole race would have been extinguished. Similarly, there must have been a difference in the beginning in man's resisting power to malaria, else all would have been exterminated in the regions the haunts of malaria. It is only those who varied favourably who survived and continued the race. This is as true with regard to alcohol as it is to malaria and to every zymotic disease.

One word more. Many are hoping for a time when alcohol may be banished from the face of the earth. That day will never come, for as there is as great a tendency to atavism as there is to evolution there will always be numbers who will drink simply for the pleasure of deep indulgence and of getting drunk. Nature is eliminating the great numbers who have the craving for getting drunk slowly and surely, only leaving those to survive who can drink without the desire to get drunk, such as the Jews of to-day. She could be helped, but the day is not yet.

I am, Sirs, yours faithfully,

July 19th, 1903. C. R. NIVEN.

NOT "THE USUAL BOND."

To the Editors of THE LANCET.

SIRS,—The attention of the council of the Medical Defence Union has lately been called to a case in which house surgeons and house physicians of a provincial hospital have been required by the board to sign a bond to prevent and to prohibit them from practising in the district in which the hospital is situated at the termination of their resident appointments and at any future time. I am directed by the council to ask you to allow them to warn candidates for such appointments against signing such bonds which cannot be enforced legally but which morally may prevent them from advancing their career in a district in which they might desire later to settle down. The method adopted is contrary to all ethical principles as it makes a condition which may prevent men well qualified from holding the appointments; such appointments should be open to the best candidates. It is impossible to believe that in case of breach of this bond the moneys of the hospital would be spent in obtaining, or attempting to obtain, an injunction and no medical man should bind himself down to a lay authority not to practise in a certain district.

I am, Sirs, yours faithfully,
A. GEORGE BATEMAN,
General Secretary, Medical Defence Union.
Trafalgar-square, W.C., July 21st, 1903.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—I am able to add another case of goitre successfully treated by the use of distilled water to the three reported by Dr. C. A. Rayne in THE LANCET of July 18th, p. 185. I was consulted last September by a young woman, aged 17 years, who was suffering from a medium-sized goitre. The water in the village where she lived was very hard and bearing in mind the prevalence of goitre in districts where such is the case I advised her to give up entirely the local *drinking water and to drink only non-aerated Salutaris water*, which is, I believe, distilled water. She has done this since and is very greatly improved in health and the goitre has diminished both in size and in firmness—a result that I attribute to the change from a hard to a perfectly pure soft water. I am, Sirs, yours faithfully,

Lincoln, July 20th, 1903. W. H. B. BROOK, M.D. Lond.

THE PRELIMINARY SUBJECTS OF MEDICAL EDUCATION.

To the Editors of THE LANCET.

SIRS,—It is obviously impossible to condense into a few lines all the arguments urged and points brought forward in a speech which, *horresco referens*, occupied nearly half an hour. Hence I cannot and do not complain of your report of my remarks at the recent meeting of the General Medical Council. But there is one error to which, in justice to myself and others, I must be allowed to call attention. I *did say that the examination in physics at the Conjoint* Board was a farce and I also pointed out that the board of management and not the examiners was responsible for the regulations under which the examinations were held. But I certainly did not characterise *this* arrangement as a farce, as your report makes me do, nor, as a matter of fact, were the two observations made in connexion with one another, as the process of compression would make it appear that they were. My point was that the examiners were working under rules laid down for them for which they were not *responsible*. This may or may not be a good plan; I expressed no opinion of any kind upon that question but merely stated what had been conveyed to me as a fact at the time of the inspection.

As I am writing, may I add that I certainly did not use the phrase, "sit hours to set up a more ideal curriculum," though to some extent it expresses my meaning. I feel that the first year of medical study is by no means in a satisfactory condition and that if we could attack that problem and solve it we should be doing a good piece of work in the *interests of medical education*. I sincerely hope that some settlement may now be arrived at with the Royal Colleges as the result of this recent meeting and that when that has been accomplished we may seriously devote ourselves to the task of reforming our curriculum, especially as regards the earlier subjects of study.

I am, Sirs, yours faithfully,

Birmingham, July 18th, 1903. BERTRAM C. A. WINDLE.

OCIMUM VIRIDE AND MALARIA.

To the Editors of THE LANCET.

SIRS,—I have been very much interested in the correspondence which has recently appeared in the press at home concerning the anti-malarial properties of the plant ocimum viride. This plant is a native of the west coast of Africa and glowing accounts have appeared as to its presumed anti-malarial properties. Although it does not grow in Hong-Kong it belongs to the same genus as the well-known pot-herb basil which is cultivated here. Professor Groom, *formerly lecturer on botany at the Imperial Naval College at* Whampoa, China, has written an article recently referring to the anti-malarial properties of the papaw tree. He mentions that during his stay in China he never saw any insect whatever on these trees. This tree is very common here and its well-known digestive properties are much appreciated, but on one of these trees recently two species of fly and one of ant were found. The castor-oil plant has also had its turn as being anti-malarial.

Undoubtedly the eucalyptus possesses anti-malarial properties, due, I take it, partly to the essential oil contained in its leaves but chiefly to the property it possesses of converting swamps (breeding places for mosquitoes) into dry land. If a plant could be found which possesses all the properties ascribed to the ocimum viride it would prove a great boon to the long-suffering residents in the tropics whose midnight slumbers are often disturbed by these tiresome pests (mosquitoes), not to mention the flying cockroaches and numberless vermin which infest these regions. An attempt is to be made to grow this plant here but I very much doubt whether it possesses such wonderful properties as have been described. I should not be surprised were the old upas tree to be "trotted out" as an anti-malarial agent.

I am, Sirs, yours faithfully,
J. M. ATKINSON, M.B. Lond.,
Principal Civil Medical Officer, Hong-Kong.
Hong-Kong, June 13th, 1903.

THE CAVENDISH LECTURE.

To the Editors of THE LANCET.

SIRS,—In your accurate and generous abstract of my Cavendish Lecture, published in THE LANCET of July 18th, may I correct one little error which vitiates the meaning of an important sentence. Your report runs thus (p. 141, col. 2): "Herein lies the perilousness of aortic pain to him whose heart is frail—to him, let us say, whose coronary arteries are occluded, which, by the way, is far from being a necessary consequence—and whose cardiac muscle is in decay." The sentence should run thus: "Herein lies the perilousness of aortic pain to him whose heart is frail—to him, let us say, whose coronary arteries are occluded and whose cardiac muscle is in decay, which, by the way, is far from being a necessary consequence."

I am, Sirs, yours faithfully,
July 20th, 1903. T. CLIFFORD ALLBUTT.

INCREASE OF LEPROSY IN BARBADOS, WEST INDIES, AND TWO OF THE SO-CALLED CURED CASES.

To the Editors of THE LANCET.

SIRS,—From time to time cases of leprosy are reported as cured, and it is with a view of bringing up the pseudo cure of this loathsome disease that I venture to allude to two of the numerous cases that have been brought under my notice.

CASE 1.—A negress, aged 17 years, was admitted into the lazaretto by Dr. Leonard T. F.-S. Archer, visiting physician, suffering from tuberculated leprosy on Nov. 30th, 1894. She was put upon salicylate of soda mixture and in about six months after being treated she had considerably improved and no trace of leprosy can at present (December, 1902) be seen.

CASE 2.—A negress, aged 35 years, was admitted to the lazaretto as a case of mixed leprosy on Oct. 10th, 1901. The hands were markedly "clawed" and the other signs of leprosy well marked. After one year's treatment with salicylate of soda mixture there was no trace of leprosy—she was "apparently cured."

These cases so struck me when I was acting for Dr. Archer that I spoke to him about the advisability of suggesting to the Government the construction of a separate place for the cases "apparently cured" as a means of getting the numerous cases of leprosy that are allowed to roam at large over the island into the lazaretto for treatment, and thus make some move by isolation towards the stamping out of a disease which is undoubtedly on the increase in Barbados. At the end of December, 1883, there were 72 lepers in the lazaretto and at the end of December, 1902, there were 119. The following table shows the number of fresh admissions from 1883 to 1902:—

Year.	Fresh cases.	Year.	Fresh cases.
1883	18	1893	20
1884	21	1894	22
1885	23	1895	13
1886	12	1896	21
1887	18	1897	22
1888	13	1898	23
1889	38	1899	17
1890	29	1900	13
1891	16	1901	17
1892	19	1902	24

But we cannot expect to get even a proper attempt at isolation of cases of leprosy when persons suffering from leprosy are employed in the lazaretto and allowed to live outside the institution and enjoy the liberties of ordinary persons as to marriage, &c. The cases of apparently cured leprosy, if the patients live long enough, will break out again, so I hardly think it fair for them to be written up as cured, when the disease is undoubtedly only under a temporary arrest.—I am, Sirs, yours faithfully,

FREDERICK DEANE, F.R.C.S. Edin.,
Visiting Physician (Acting), Lazaretto, Barbados, W.I.

THE FATAL EFFECTS OF CHLOROFORM ON CHILDREN SUFFERING FROM A PECULIAR CONDITION OF FATTY LIVER.

To the Editors of THE LANCET.

SIRS,—I was much interested with Dr. Leonard G. Guthrie's paper which appeared in THE LANCET of July 4th, p. 10. When I was pathologist to the East London Hospital for Children I had the opportunity of examining a case similar in many respects to Dr. Guthrie's. The history was briefly as follows. A very fat child, aged ten months, was admitted to the above hospital under the care of Dr. H. Morley Fletcher on March 16th, 1903. The mother stated that the child had suffered from a cough for a few days before admission to the hospital and had had attacks of vomiting after coughing. There had been no diarrhœa. The child was breast-fed and had always been perfectly well. The parents were healthy and also their other children. The child appeared to be very ill when brought to the hospital. The radial pulse was only just perceptible and was very rapid. The temperature was subnormal (97° F.). The child improved for a short period after a mustard bath. Physical signs of broncho-pneumonia at the base of the left lung were the only abnormal changes detected. The child gradually became more drowsy and died about 24 hours after admission to the hospital. The temperature was subnormal while under observation. A necropsy was performed about 12 hours after death. The body was covered with a thick deposit of adipose tissue. There was well-marked evidence of rickets in most of the bones. There was no discolouration of the skin or conjunctiva. Patches of broncho-pneumonia and collapse were scattered throughout the left lower lobe. The rest of the lungs were healthy. The bronchial glands were enlarged but there was no evidence of tubercle. The heart muscle and cardiac orifices were found to be normal. All the serous sacs were normal. *The liver was a pale fawn colour* and presented a most striking appearance. Sections of the organ were made in various directions and except for scattered purple dots the liver was of the same uniform colour. There was no thickening of the capsule and the liver substance was perfectly firm. No hæmorrhages were seen on the surface of the organ or elsewhere. The bile and pancreatic ducts were carefully dissected along their course but were found to be normal. The gall-bladder, pancreas, kidneys, spleen, and adrenals were apparently healthy. The stomach contained a small quantity of partially digested food, but this viscus and the whole of the intestinal tract were found to be normal. The rest of the body was quite healthy. Pieces of the liver[1] were hardened in 10 per cent. formalin and stained with Sudan III. and Scharlach. Typical large and small fat droplets were scattered diffusely throughout the liver tissue. Sections of the liver were also stained with hæmalum and eosin. There did not appear to be any hepatic tissue left; the whole of the sections were composed of clear spaces, with a few scattered nuclei and the portal canals. No granular matter was present; in fact, there was little to be seen except for the honeycombed arrangement already referred to. The fatty degeneration was uniform; both the central and peripheral portions were equally affected.

No cause could be assigned for the extremely fatty liver which I found in this case. At first it was thought that we might be dealing with a case of phosphorus poisoning, but further observation showed that there was no evidence to substantiate this view. Acute yellow atrophy of the liver might be dismissed in a similar manner. The only changes observed at the necropsy were broncho-pneumonia and rickets, but one never sees such a condition of the liver in either of these diseases. It is most probable to my mind that we have here an example of fatty liver similar to, but perhaps even in a more advanced stage, than, the condition described by Dr. Guthrie. The child had never had any chloroform and the question of carbolic acid or other poisons was stoutly denied by the mother. There is one more point I should like to mention, however—viz., the complete absence in my case of such symptoms as violent vomiting, fever, delirium, slight jaundice, &c. Trusting these few notes may be of interest to those who have read the interesting paper by Dr. Guthrie,

---

[1] The specimen is now in the museum of St. Thomas's Hospital.

I am, Sirs, yours faithfully,
LEONARD S. DUDGEON,
Superintendent of the Clinical Laboratory, &c., St. Thomas's Hospital, S.E.
July 10th, 1903.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 4th, p. 10, Dr. Leonard G. Guthrie calls attention to this subject. The paper opens up a most important question, for I fancy that most surgeons in children's practice have had the misfortune to lose cases within 48 hours of a comparatively simple operation and after the succession of symptoms described The possibility of carbolic poisoning could not, in some of Dr. Guthrie's earlier cases, be absolutely excluded, so it is of importance that instances in which this agent was not used should be recorded. The following is a case in point.

A healthy boy, aged three years, was admitted into the Manchester Children's Hospital in June, 1902, for the radical cure of a right inguinal hernia. Operation was performed two days later. The skin area was prepared by soap, spirit, and turpentine, followed by weak biniodide solution. No antiseptic was used throughout the operation which was an entirely uncomplicated Halstead's operation. There was little after-vomiting. Symptoms of restlessness commenced at the end of 24 hours, gradually progressing to coma, death taking place 48 hours after the operation. There was no marked rise of temperature until five hours before death (103° F.). Necropsy 24 hours after death showed marked congestion of the brain and membranes. The liver was of the pale buff colour described. All the other organs were absolutely healthy. Bacteriological examination of the wound and of the blood gave a negative result. Unfortunately no minute examination of the liver was made, but I remember being much struck by its remarkable appearance.

Isolated observations of similar cases have within the last few months been made and the fatal result ascribed to (*a*) some form of acetonæmia or (*b*) "the lymphatic diathesis," with the presence of an enlarged thymus gland. Unfortunately I cannot for the moment put my hand on the references to the papers, which are quite recent, with these suggestions. It may be noted, however, that Dr. Guthrie calls attention in his paper to the smell of acetone in the breath of children suffering from acute gastric catarrh and suggests that these may be the cases in which chloroform is especially dangerous. It is difficult in similar cases to the above to be convinced of the entire absence of any septic complication. Without a proper examination of the wound and the blood one is hardly justified in a diagnosis. But for this restraining influence I am afraid other instances could be rather freely collected. It is to be hoped that Dr. Guthrie's paper will bring out further evidence to throw light on a most interesting and important problem.—I am, Sirs, yours faithfully,

Manchester, July 17th, 1903. W. P. MONTGOMERY.

THE EXTENSION OF HAMPSTEAD HEATH.

To the Editors of THE LANCET.

SIRS,—Your notice about the extension of Hampstead Heath showed your sympathy with the movement and therefore you will perhaps allow me to add the names of the officers of the council and my address, to which offers of donations can be sent. The Right Hon. G. J. Shaw-Lefevre is the president, the Earl of Meath is the vice-president, Sir Robert Hunter and Mr. E. Bond, M.P., are the joint treasurers, the bankers of the fund are the London and South-Western, Limited, 28, High-street, Hampstead, and Lloyd's Bank, Limited, Rosslyn-hill, Hampstead, and I am the honorary secretary. Our first council meeting was held on June 26th but already nearly £7562 have been promised, besides £3000 conditionally offered, but that sum is a long way below the total of £48,000 that is needed. It behoves, therefore, all who care to preserve the beauty and freshness of Hampstead Heath to send their gifts or promises without delay, and if any will bestir themselves to interest others I shall be glad to send a paper giving full details, with a map, a picture of the heath and the fields, subscription forms, and any other information that is required.

It is delightful to those of us who know the lives of town workers, the stress and pain of heat and crowds and noise, to think that the tube railway will soon bring swiftly and cheaply hundreds and thousands of them out to the clean air and verdant loveliness which the Heath affords. But unless the 80 acres of the neighbouring fields are secured the large numbers will destroy the beauty they go to seek and the streets of small houses that it is proposed to build will spoil the far-famed view and defile the bright high air with smoke. It is not as one who sometimes rests in a cottage in Hampstead, but as one who often works in Whitechapel and knows the conditions of the thousands of people who live in places where flowers will not grow, that I tell of this need to the public-spirited of your readers who care to give to impersonal causes.

I am, Sirs, yours faithfully,
HENRIETTA O. BARNETT,
of Toynbee Hall; Honorary Secretary of the Hampstead Heath Extension Council.
St. Jude's Cottage, Hampstead, July 15th, 1903.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Officership of Health: Retirement of Dr. A. Hill.

Dr. J. Robertson, Dr. A. Hill's successor, has now been appointed in accordance with the recommendation of the health committee reported in my last letter. It was to be expected that an officer who has occupied his position for so many years as Dr. Hill has done would not be allowed to lay down his charge without some recognition of his services. The health committee has expressed its opinion in the following resolution which was passed at its last meeting:—

> That this committee wish to place on record their deep sense of the value of the services rendered to the city by Dr. Alfred Hill during the [illegible] nt office of medical officer of [illegible] sanitary conditions of the [illegible] average death-rate reduced [illegible] happiness in his well-earned retirement from active public duties.

His colleagues in the service of the corporation have also shown their appreciation of Dr. Hill's work. The town clerk (Mr. E. Orford Smith) presided on the occasion of a presentation and was supported by most of the heads of the different corporation departments. In the course of his speech Mr. Smith made special allusion to the uniformly pleasant relations which had existed between Dr. Hill and the other officials during the 40 years of his connexion with the corporation, ten as public analyst and 30 as medical officer of health, and congratulated him upon the great decline in the death-rate which had taken place during his term of office. He presented to Dr. Hill, on behalf of the corporation officials, a silver tea and coffee service and a dozen silver teaspoons and expressed the wish that Dr. and Mrs. Hill might live for many years to enjoy the use of those articles. In his reply, Dr. Hill, after thanking his colleagues for their gift, recalled the fact that only one member of the corporation under whom he first served was still alive—Alderman Manton. He had seen all the others out and several series of them. He had at various times acted with the following chief officers: three town clerks, three treasurers, four coroners, two stipendiary magistrates, two borough surveyors, three clerks of the peace, five magistrates' clerks, four chief constables, and five chief inspectors of nuisances. The population in 1861, when he entered upon his duties, was 296,000 and to-day it was 533,000. Alluding to some of the work upon which he had been engaged Dr. Hill specially mentioned the closing of the town wells as a peculiarly arduous task, since there were 4000 of them, and an analysis had to be made of the water in each. With regard to the food of the people he had with the aid of his assistants made 20,000 analyses during his time of office. Adulteration still flourished and he was afraid that it would continue to do so as long as very small fines were inflicted. Small fines did not act as a deterrent but seemed to have the effect of encouraging it. What was wanted was an extended official purchase of articles of food. He also reminded his hearers of a part of his work which might easily escape the notice of those imperfectly acquainted with the duties of his position—viz., the responsibility and danger which he had to incur in connexion with the investigation of the dynamite conspiracy. Samples were brought to him from time to time and were of such a character that he came to the conclusion that the explosive must be manufactured in the district. That view was opposed at the time but it turned out to be correct and more than a hundredweight of nitro-glycerine was discovered. If that had exploded it would have blown the neighbourhood to atoms. Dr. Hill's quarterly report shows a further decline in the death-rate to 18·4 per 1000—the lowest on record for first quarters of the year and no less than 1·2 per 1000 below the best death-rate previously recorded in any quarter. He attributes this result largely to the character of the weather. With the exception of a short spell of cold in the middle of January the weather was remarkably mild, only ten days during the whole quarter having a temperature below freezing-point, against 31 in the corresponding quarter of 1902. In consequence of this mild weather the deaths from those diseases which are most affected by cold, such as bronchitis and pneumonia, were much fewer than usual.

The Lunatic Asylum.

Dr. E. B. Whitcombe's report for the year 1902-03 contains a number of important facts and suggestions. He states that the number of patients in the various asylums on April 1st, 1902, was 1611 and the number admitted to March 31st, 1903, was 483, making a total of 2094. There were discharged during the same period as recovered, relieved, not improved, or died, 506, so that there remained in the asylums on March 31st last 1588. The decrease in the number at the end of the year is due to the discharge of all the patients in residence who were chargeable to Lancaster and London. If these are deducted it will be seen that the number belonging exclusively to Birmingham has slightly increased. The recovery-rate for the year was 43·49 per cent. and the death-rate 14·78 per cent. He calls particular attention to the large number of male patients who have been admitted suffering from the effects of drink and says that "over 23 per cent. of the male admissions were directly from this cause, and although a large majority of these get well and are discharged, it is very sad to find that so large a number come to our institution from a purely preventable cause. The percentage of females from the same cause has, I am glad to say, been only 8 per cent. There can be no doubt that a large number of these cases go to excess as a result of previous mental weakness, but by far the greater number, I fear, are genuine preventable cases. Suggestions and remedies for the prevention of drunkenness have been made for many years and these are as varied as they are numerous. How far coercion is going to be of service in this respect remains to be seen. My experience in dealing with the insane has long led me to the conclusion that coercive measures are fatal to recovery, to comfort, and to good management, and I cannot help thinking that such measures must prove absolutely useless in dealing with those who are mentally weak enough to gradually destroy themselves by excessive drinking. One of the recent cries of the British public, and especially of the working classes, is for more amusement, and I cannot see why this should not be provided outside and distinct from public-houses, where the temptation to excess is ever present. Few temperance houses have the attractions, either in building, amusements, and other resources, which can compare with those attached to public-houses." Dr. Whitcombe points out that only nine patients out of the large population of Birmingham have been admitted during the year as paying patients. He attributes this to the fact that there is no separate accommodation for such patients and that those who are admitted are classed as paupers, a fact which relatives very properly resent. Finally he makes an important suggestion. He says, "The completion of our new asylum at Hollymoor, when it takes place, will, I hope, give the committee more time and means to carry out some of these suggestions and to bring our institution up to the level of a modern hospital for mental diseases. This brings to my mind another matter which I have long since called attention to—the name 'lunatic asylum.' The word 'lunatic' is a misnomer, so far as it relates to mental diseases, and I hope, when Hollymoor is opened, that there will be a re-christening of our old institution and that we may have the title of the 'Birmingham City Hospital for Mental Diseases.'"

Inquest on a Lunatic with Fractured Ribs.

An inquiry was held into the cause of death of a lunatic, at the post-mortem examination upon whom it had been discovered that the third, fourth, and fifth ribs were fractured, two of them close to the sternum which was also fractured. Dr. A. T. Holdsworth, who made the post-mortem examination, stated that the lungs showed signs of pneumonia and that the bones were not only exceedingly brittle but also soft. The deceased had complained that a big man had sat upon his chest. He had been in a restless state for some days and some force had been necessary to keep him in bed. Owing to the pain caused by the fractured ribs it was impossible to percuss the chest, but the presence of pneumonia was diagnosed. Dr. Whitcombe stated that he had seen cases of this kind before and the condition of the bones was such that he had no hesitation in saying that the night attendant in holding the patient and using a more than ordinary amount of force injured the chest. He had not told the attendant so; he did not think he consciously did anything of the kind. Some disagreement arose amongst the jury as to their verdict, but eventually 12 of the 15 found that the cause of death was pneumonia, that more force than necessary was used, and that death was accelerated by the fracture of the ribs.

July 18th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Royal Institute of Public Health: Congress at Liverpool.

THE annual congress of the Royal Institute of Public Health, which this year was held at Liverpool, was opened with ceremonial dignity on July 15th by the Earl of Derby, K.G., in the small concert room of St. George's Hall, academical and municipal robes being much in evidence. His Lordship, who wore the insignia of a Knight of the Garter, was accompanied by the Lord Mayor of Liverpool, Dr. W. R. Smith (President of the Institute), the Lord Bishop of Liverpool, Sir Charles Cameron, Sir Henry D. Littlejohn, Sir Charles Petrie (ex-Lord Mayor of Liverpool), Sir William B. Forwood, and the Mayors of Birkenhead, Dover, Douglas, Ossett, Lancaster, Nelson, Hyde, and Macclesfield, among others. In his inaugural address Lord Derby asked to be allowed to express his very deep appreciation of the compliment which the institute had paid him. He felt it a high honour to be able to record his name alongside those of men of such eminence and light in the medical and other professions. Proceeding to deliver his address, he said that he was not sure that we are not priding ourselves too much on the advance made. He was not sure that on ordinary sanitary questions after all we were much in advance of some nations of antiquity. It might be humiliating but it was wholesome to remember that we were not the inventors of cleanliness. The Congress was resumed on July 16th when the sections met at University College. Discussions took place on rehousing and insanitary areas, the prevention of consumption in large towns, bacteriological research under public auspices, town milk-supplies, and other subjects, concerning which your special corespondent will write with more detail. In the afternoon visits were paid to the Liverpool municipal tenements and Port Sunlight and in the evening members attended a reception given at the Walker Art Gallery by Sir William Forwood and Lady Forwood. On July 17th and 18th the meeting of sections was continued. On the afternoon of the former day a garden party given by the Lord Mayor and Lady Mayoress of Liverpool was largely attended, while on July 18th members and delegates took advantage of a variety of excursions arranged by the local executive committee to visit places of interest in the districts round Liverpool. One party visited Chester and Eaton Hall, proceeding up the river Dee by steamer, a second party visited Hawarden Castle, and a third the Norton water tower and the Liverpool pathological farm near Runcorn. There was also an excursion to Rivington waterworks on the invitation of the water committee of the city council as well as a visit to the Lancashire and Yorkshire railway workshops at Horwich. The Delamere Forest sanatorium were also visited, whilst other parties proceeded to the Isle of Man and Llandudno. On Sunday, July 19th, a large number of the members of the Congress and of the city council and other public men accompanied the Lord Mayor to the cathedral church of St. Peter where the Lord Bishop occupied the pulpit and preached an appropriate sermon to the members of the Congress. On the 20th the Section of Preventive Medicine was engaged in discussing the transmission of infectious disease, the need for greater power to cope with the spread of small-pox, and underground bakehouses. The establishment of municipal bakeries was suggested. The Bacteriological Section passed resolutions in favour of scheduling tuberculosis in animals as a contagious disease and the appointment of a Minister of Public Health. The annual Congress dinner was held in the evening at the Adelphi Hotel, under the presidency of the Lord Mayor. The company was a large and influential one. The membership of the Congress included delegates from 43 counties and county boroughs, 30 non-county boroughs, 88 urban and other local authorities, and 56 universities, colleges, and societies. The Liverpool meeting was a great success towards the attainment of which Dr. E. W. Hope, medical officer of health of Liverpool, and Dr. A. A. Mussen, his assistant, worked very hard.

Hospital Saturday and Sunday Funds.

At a meeting of the joint committee of these funds, held at the town-hall, the Lord Mayor presiding, the treasurer was authorised to make the following distribution—viz.: Royal Infirmary, £2992; Royal Southern Hospital, £2040; David Lewis Northern Hospital, £1768; Stanley Hospital, £986; Liverpool dispensaries, £816; Queen Victoria District Nursing Association, £816; Infirmary for Children, £816; Eye and Ear Infirmary, £544; Hahnemann Hospital, £544; Consumption Hospital, £476; Hospital for Women, £408; Ladies' Charity and Lying-in Hospital, £408; St. Paul's Eye Hospital, £408; Convalescent Institution, Woolton, £340, &c. The total of these sums is £13,600, being the same as last year.

July 21st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Newport Isolation Hospital.

WHEN the Newport (Mon.) Isolation Hospital was erected in 1896 it was anticipated that the 34 beds then provided would be found inadequate to the needs of a town with a population approaching 70,000 persons. The corporation is therefore to be congratulated upon the completion of a fourth ward pavilion to accommodate 22 patients. Additions, including lavatories, bathrooms, and 21 bedrooms, have also been recently made to the administrative block. The whole institution is now lighted with electric light, an installation of 500 lamps of 16 candle power having been provided in connexion with the town mains. The cost of the original hospital was £14,132, or £415 per bed; the total cost of the hospital as now completed is £24,277, or about £433 per bed. The inhabitants of the town appear to be anxious to make use of the hospital, for in 1902 there were treated in the wards nearly 54 per cent. of the patients notified as suffering from scarlet fever, diphtheria, and typhoid fever. During the same period, of the scarlet fever patients treated at home 2·5 per cent. died, compared with a mortality of 1·9 per cent. among those treated in the hospital, and among the diphtheria patients the fatality among the home-nursed cases was 5·1 per cent., compared with 3·2 per cent. among the hospital cases.

Small-pox.

South Wales is now almost free from small-pox. In Cardiff there have been no fresh cases for three weeks, Swansea has had no cases for many months, and the disease is absent from the populous mining districts except at Pontypridd where there have been nine cases since the middle of June. All the patients have been isolated in the district council's hospital and vaccination is being largely resorted to by the inhabitants of the town. In the town of Bridgend there is one case in the small-pox hospital, the patient having contracted the disease at Pontypridd.

Swansea Convalescent Home.

It is now very generally admitted by the managers of *general hospitals* that the *most economical* method of increasing hospital accommodation is by the provision of a separate building to which convalescent patients may be removed. Such an institution in connexion with the Swansea Hospital was opened on July 17th upon a site on the hillside commanding a magnificent view of the Bristol Channel and Swansea Bay, with the Mumbles on one side and Port Talbot on the other. There is accommodation for 20 patients in two one-storey pavilions, each of which includes a ward, a day room, and bath-room, lavatories, &c., with verandahs running the whole length of the front of the buildings which have a south-westerly aspect. Between the two pavilions and connected by an open covered way is a two-storey administrative block *in which there are on the ground floor a large dining-hall for* the patients, kitchens and rooms for the staff, while on the first floor are the staff bedrooms. The cost of the building was £4100 and only about £500 of this sum remain to be subscribed. The scheme was originated about two years ago owing to the generosity of an anonymous contributor who offered through the then chairman of the hospital board (Miss Dilwyn) to give £500 towards a building fund and £10,000 to be invested for the maintenance of the institution. It is estimated that the interest on this latter sum will be sufficient to maintain ten beds, which number it is proposed shall for the present be occupied. The managers of the Swansea Hospital, unlike those of some similar institutions, have during recent years been so well able to make both ends meet that it is hardly likely that they will allow their new convalescent home to remain only partially occupied.

Swansea Hospital Operating Theatre.

The operating theatre connected with the Swansea Hospital will no doubt be visited by a large number of the members of the British Medical Association during next week. It is circular in shape and has its floor, walls, and ceiling constructed of an impervious material. There is also an entire absence of ledges and niches which act as dust traps.

Death of Trevor Halket Evans, M.A., M.B., C.M. Cantab.

The sudden death of Dr. Trevor Halket Evans of Whitchurch on July 14th, at the early age of 34 years, has deprived the neighbourhood of Cardiff of one of its most promising practitioners. Dr. Evans was a son of Mr. Franklen Evans, J.P., M.R.C.S. Eng., who retired from active practice many years ago.

Pearn Convalescent Home.

The annual meeting of the Pearn Convalescent Home at Plymouth was held on July 17th under the presidency of Admiral Wilson. The medical report stated that during the past 12 months 500 patients had been admitted; this was the largest number since the foundation of the home, and compared with 485 in the previous year. The expenditure amounted to £978 and there was a favourable balance of £192. The report of the nurses' home in connexion with the Pearn Convalescent Home showed that 111 nurses had been admitted during the year, against 85 in the preceding year; the expenditure on the nurses' home for the year was £370.

The Dangers of Ice-cream.

The inspector of nuisances has reported to the Exeter sanitary committee that in various places in the city where ice-cream was manufactured the premises were rented by Italians who provided many of their nationality with sleeping accommodation. The rooms were in a very dirty condition and ice-cream was often made in a small dirty backyard or in the common kitchen. It was suggested that the public analyst should examine some of the ice-cream so that its condition might be ascertained. The sanitary committee, after discussing the report, decided to instruct the sanitary inspector to take samples of ice-cream and to submit them to the public analyst for analysis and bacteriological examination.

July 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Granard Guardians and their Medical Officer.

THE nursing scandal at the Granard union infirmary and the friction which has existed for months between the guardians and their medical officer have recently assumed a more serious aspect. It will be remembered that after a prolonged inquiry the Local Government Board strongly censured the guardians for what it called "a most improper attempt to intimidate an officer in the conscientious discharge of his professional duties." The Board declined to go further into the conflicting statements of the nursing sisters and the medical officer but strongly urged the necessity for harmony in their relations. The sisters, however, repeated their statements as to Dr. J. M. S. Kenny's alleged insulting language and requested the board of guardians to pass a vote of censure on him. This was accordingly done, notwithstanding Dr. Kenny's denial of the charges against him *in toto.* This strong measure did not, however, suffice in the absence of any reprobation from the Local Government Board. The sisters were unsatisfied and resigned their connexion with the hospital. Trained nurses were appointed and it was hoped that no more would be heard of the matter. After a delay of many weeks the guardians have again taken up their cudgels against Dr. Kenny in support of their former nursing sisters. At their meeting on July 6th they proceeded to suspend their medical officer and called on the Local Government Board to inquire again into his conduct. The Board replied on July 9th that after the recent full inquiry and in the absence of any additional facts the guardians were not warranted in suspending their medical officer from duty. Moreover, that the suspension had now been removed and Dr. Kenny directed forthwith to resume his duties as workhouse medical officer. Owing to the suspension of Dr. Kenny and the failure of the guardians to obtain a substitute for him the patients in the infirmary were deprived of medical aid for about four days. At a meeting held on July 14th the clerk of the union read the following letter from Dr. Kenny :—

> July 13th, 1903.
>
> With reference to the death of a patient in the infirmary named Masterson, aged 43 years, I consider it to be my duty to report the circumstances of his death. On Monday last I directed the nurse to have the patient prepared for operation on the following morning. Being suspended by your board I was unable to perform this operation. On three previous occasions I was able to prolong this man's life and relieve his sufferings by such treatment. He was left unattended to. He died in great distress on Friday evening. I send you a letter I had from the nurse in charge on Wednesday evening and my reply. I resumed duty by directions of the Local Government Board on Thursday evening. On my return I found that nothing had been done for the patients with the exception of the care bestowed on them by the nurses during the interval of my suspension.
>
> Yours obediently,
> JOSEPH M. S. KENNY.

The clerk also stated that on July 8th Nurse Gallagher wrote to Dr. Kenny stating that a patient's temperature was 103·6° F. and the pulse was 118, that he looked feverish, and that she had applied to the master for a medical man, but no medical man had appeared. To this letter Dr. Kenny replied that he was prepared to attend on requisition if the master considered it necessary. After a long and irrelevant discussion the following motion was adopted :—

> That inasmuch as an inmate of the infirmary, John Masterson, who died on Tuesday last and whose life could have been prolonged, if not saved, had there been a medical officer discharging the ordinary infirmary duty, and as the infirmary was without a medical officer from 12 o'clock noon on Monday till 4.40 on Thursday, in consequence of which an urgent operation necessary to save this man's life could not be performed, we hereby demand an explanation from the master as to why such medical officer was not procured.

The last meeting of the Granard board of guardians took place on July 21st, when a letter was read from the Local Government Board stating that it had instructed its inspector to hold an inquiry in reference to the death of the patient Masterson. It was marked "read." It seems to me that the Local Government Board is becoming more unpopular and more ineffective every day owing to its curious want of consistency and firmness. Its first letter to the Granard guardians after the conclusion of Dr. Joseph Smyth's inquiry was sufficiently strong. It informed the blundering and squabbling board that it had grossly neglected its duties, that it had incurred the punishment of dismissal, and hinted that but for some signs of improvement in the conduct of its business that penalty would have been visited on it. Now the Local Government Board has ceased to allude to anything penal, although the conduct of the guardians has become more and more hopelessly bad every week during the last two months. The Local Government Board is treated with discourtesy almost amounting to contempt and its letters are marked "read." Well may the *Irish Times*—the organ which ought to be, and usually is, the journal of the Local Government Board in Ireland—express the feeling of the public in a leading article of July 14th as follows :—

> After the proceedings at yesterday's meeting of the Granard board of guardians it becomes a serious question whether the Local Government Board will not be guilty of a grave dereliction of duty if they do not dissolve the present board and send down paid guardians to manage the affairs of the union until feeling has somewhat cooled down in reference to the scandalous dispute which has given the local board such an unenviable notoriety.

Visit of the King and Queen to Belfast.

The principal function in which their Majesties Edward VII. and Queen Alexandra are to take part in Belfast is the formal opening of the Royal Victoria Hospital and the official programme has just been issued. Their Majesties will arrive at the new hospital, Grosvenor-street, on July 27th, at 1 P.M. They will be received by the Lord Mayor (the Right Hon. Sir D. Dixon, D.L.) who will present the Right Hon. W. J. Pirrie and Mrs. Pirrie and Mr. W. Crawford (chairman of the board of management). The last-named will read an address, to which the King will graciously reply, and the following gentlemen will have the honour of being presented: the Right Hon. Thomas Sinclair, D.L., Mr. R. H. Reade, D.L., Mr. A. McDowell, Dr. J. Walton Browne (chairman of the medical staff), Sir William Whitla (senior physician), and Mr. W. Henman (architect). Their Majesties will proceed to inspect the building and in the "Pirrie Ward" Miss Carlisle will have the honour of being presented. Her Majesty will name one of the wards the "Clarence Ward," when Professor J. W. Byers will have the honour of being presented. Their Majesties will then leave the hospital through the out-patient department, where Mr. W. McLaughlin, the builder, will have the honour of being presented.

Dr. E. C. Thompson, M.P., and the Omagh Guardians.

I am glad to say that in the case in which the Omagh guardians appealed against the decision of the county court judge awarding Dr. Thompson £6 6*s.* for acting for Dr. H. B. Fleming, medical officer of the workhouse, during that gentleman's illness, Mr. Justice Madden, to whom the appeal was made, has confirmed the decree with costs.

The Purdysburn Asylum, Belfast.

At a meeting of the committee of the Purdysburn Asylum, held on July 20th, a report was received from Mr. Henry Davey, M.I.C.E., London, the expert engaged to consider the question of the water-supply for the Purdysburn Asylum buildings, in which he pointed out that there were three possible methods of obtaining a water-supply—viz., (1) by pumping from the water commissioners' mains; (2) by sinking a well and pumping from it for all purposes; and (3) by taking water for washing purposes from the brook and obtaining a supply for drinking and culinary purposes either from a well or from the water commissioners' mains, involving a double system of pipes and tanks. After fully discussing the matter Mr. Davey recommends (1) that the power for all purposes, including pumping, should be provided by steam by a system of electric distribution (a water tower having a tank on the top, with a steam-engine and dynamo in the base, with electric accumulators, would need to be erected); and (2) that borings should be made to ascertain the possibility of obtaining the necessary supply from wells and pumping this water up to the tank. It was decided to send a deputation to the Belfast water commissioners to confer as to the possibility of obtaining the required water-supply from that trust.

July 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hysterical Women.

ONE of the most curious, and at the same time most dangerous, manifestations of the hysterical neurosis was dealt with at the meeting of the Academy of Medicine held on July 7th by M Garnier, physician to the Depôt Infirmary. M. Garnier said that formerly the hysterical woman was considered as purely sensual, as a sense inebriate, but nowadays she was known to be the victim of an unfortunate lack of equilibrium and as one in whom the very worst disorders of sense, both motor and mental, could exist in company with the appearance of the most perfect physical health. The hysterical woman has been falsely accused, but she is, above all things, a false accuser. M. Garnier cited cases in which hysterical women had brought the most monstrous accusations

even courts of justice had been wrongly led to infer that they were true. M. Garnier considers that the mental state of the hysterical woman is that of a child with a great tendency to lie. Imagination, auto-suggestion, and hystero-suggestion find in her a fruitful field and either as witness or prosecutrix she is dangerously suspect. In any case the judge in a trial where hysterical women appear should have them examined by a medical commission as a means of protection.

Cancer and the X Rays.

At the same meeting of the Academy M. Labbé remarked that a decision had been too quickly come to as to the cure of cancer by the x rays. For his own part he thought that the cases reported by M. Vigoroux[1] were those of benign tumours which could always be removed by ordinary surgery.

The Care of the Body.

At a conference recently held at Charleville upon the necessity for personal cleanliness M. Secheret gave the following interesting statistics. 100 of the working-class population were taken at random. Of these, two took baths in a bath, 18 washed their feet when they changed their socks, 52 washed their feet twice in the winter, their bodies and neck every Saturday, and their heads never, while 28 never washed at all.

Gastrotomy for the Extraction of 25 Foreign Bodies.

At the meeting of the Academy of Medicine held on July 15th M. Monnier related a case of a young man, aged 22 years, who had been admitted to hospital for epilepsy, from which he had suffered for some time. When in hospital he was observed to have melæna but no gastric trouble. He also suffered from permanent acute pain in the left hypochondrium, together with a sensation of crepitation. The diagnosis of foreign body in the intestine was made and the patient was transferred to the surgical ward. An incision was made over the junction of the descending and transverse colon but the intestine was found to be empty, although the stomach was noticed to be full of various metallic bodies. The incision was prolonged in the line indicated by M. Labbé and an incision two centimetres long was made in the stomach. 25 foreign bodies were extracted, comprising eight coffee-spoons, the lower portion of a three-pronged fork, one staple (*patte-fiche*), two bodkins, one tooth of a comb, one blade of a knife, one needle, and one key, the total weight being 230 grammes. To extract these it was necessary to use Péan's long forceps, for the cavity of the stomach was very large. As a general rule these foreign bodies lay perpendicularly to the large curvature of the stomach and at the cardiac end. The mucous membrane was not appreciably ulcerated. The stomach was closed with three layers of silk sutures and the abdomen was closed without drainage. The patient recovered without a bad symptom and on the twentieth day he was in perfect health. He had been allowed meat to eat for a week previously. After the operation he confessed that he had swallowed all these foreign bodies some six months ago, but he could not remember how long a time he had taken to do so.

July 20th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Use of Radium in Surgery.

AT recent meetings of the Vienna Gesellschaft der Aerzte interesting discussions on the physiological action of radium took place. Dr. G. Holzknecht and Dr. G. Schwarz reported the results of their experiments made with radium on animal tissues. They had found that the majority of animal tissues, especially the vitreous body and the crystalline lens, became fluorescent and phosphorescent under the action of radium, and they therefore concluded that Dr. Londan of St. Petersburg erred in supposing that there was an irritation of the retina by the radium rays. It may be remarked that phosphorescence of the liquid contents of the eye under the influence of Becquerel rays had already been observed by the well-known German natural philosopher, Professor Giesel, some years ago. But more interesting from a practical point of view were some cases presented at the last meeting of the society by Dr. A. Exner and Dr. Holzknecht. These two physicians at first studied the pathology of the dermatitis produced by the action of radium. They found that the radium rays caused a degenerative change in the cells of the skin, in the cells of the walls of the capillaries, and in the interior of the small blood-vessels. They also succeeded in obtaining very remarkable therapeutical effects by the use of radium. Dr. Exner showed a case of Melano-sarcoma of the Skin in which an operation had been performed three years ago on the humerus and in which a great number of cutaneous melano sarcomatous tumours, varying in size from three millimetres to 1·5 centimetres, had appeared round the shoulder eight months ago. These tumours had been exposed once for from five to 25 minutes to the rays emitted by three milligrammes of radium bromide. All the tumours which had been exposed more than 15 minutes became smaller a fortnight after the exposure and disappeared after a month. At the same time only a very slight dermatitis was produced in the skin covering the tumours in question. A second similar case of melanosarcomacutis treated in the same way also showed much improvement. A third patient treated by radium rays suffered from epithelioma of the lip and had been operated on twice—namely, in 1891 and 1897. The disease recurred and there was a growth as large as a cherry when the patient was admitted to the General Hospital in May. From May 11th to June 3rd the tumour was exposed to the radium rays six times for from 15 to 20 minutes. Seventeen days after the first exposure the tumour had decreased in size very remarkably and its presence could not be recognised by clinical examination on June 26th. At the same time it was uncertain whether any cells of the new growths remained. All these cases were highly instructive as they showed that pathological formations could be destroyed by the action of radium rays without any obvious harm being done to the surrounding healthy tissues. The cases presented by Dr. Holzknecht were a successfully treated case of Psoriasis Vulgaris Gyrata (exposed for one minute), a case of Lupus Hypertrophicus of the Face (exposed for seven minutes), and an improving case of Epithelioma of the Cheek (exposed twice for five minutes). The last case presented by Dr. Holzknecht was one of Telangiectasis Plana of the Whole Left Upper Extremity and was very interesting. Eight spots of half a centimetre in diameter had been exposed for 10 minutes to the rays with the result that eight spots of the same size, consisting of perfectly normal and white skin, were visible amidst the red surface of the nævus. This case showed that the radium rays gave even better cosmetic effects than other methods of treatment. The general effect of the demonstration was to prove that radium acts as a very important remedy in many malignant diseases, in the treatment of which it will no doubt to a great extent supersede ordinary surgical methods and the application of the Roentgen rays.

Post-Graduate Courses.

Two series of vacation courses will be delivered this year, the first commencing on August 3rd and the second on Sept. 1st. The duration of each series will be four weeks. The majority of the courses are delivered either at the Vienna General Hospital or at institutes in the immediate neighbourhood of it, so that the student has not to lose time in going from one course to another. The fees for a single course varies from 50 to 100 kronen (from £2 to £4) and the aggregate duration of the lectures or demonstrations is at least 20 hours. The following courses will be given in August:—Anatomy and histology (normal), topographical anatomy and embryology, by Dr. Helly; normal anatomy of the central nervous system, by Dr. Schacherl; gross pathological anatomy, by Professor Ghon; pathological histology, by Dr. Stoerk; bacteriology, by Dr. Landsteiner; pathological dissections, by Dr. Landsteiner; pathological anatomy of the central nervous system, by Dr. Schacherl; pharmacognosy, by Dr. Hockauf; diagnosis and treatment of internal diseases, by Professor H. Schlesinger, Dr. von Czyhlarz, and Dr. Weinberger; diagnosis of heart and lung diseases, by Dr. Braun; diagnosis and treatment of gastric and intestinal diseases, by Dr. A. Schiff and Dr. von Czyhlarz; physical methods of examination, including radioscopy, by Dr. Weinberger; diseases of children, by Dr. Zappert and Dr. P. Moser; diagnosis and treatment of nervous diseases, by Professor von Frankl-Hochwart, Professor Redlich, Dr.

---

[1] THE LANCET, July 11th, p. 130.

Raimann, Dr. Erben, and Dr. Fuchs; mental diseases, by Dr. Stransky; surgical diagnosis, by Dr. Schnitzler; diagnosis and treatment of diseases of the urogenital system, by Dr. Zuckerkandl; "atypical" operations (*in cadavere*), by Dr. Foederl; pathological histology of the eye, by Dr. Wintersteiner; ophthalmoscopy, by Dr. Wintersteiner and Dr. M. Sachs; diagnosis and treatment of external and internal diseases of the eye, by Dr. Froehlich and Dr. Hanke; ophthalmological operations, by Dr. Hanke; laryngology and rhinoscopy, by Dr. Rethi and Dr. Hanszel; rhinological and laryngological operations (*in cadavere*), by Dr. Hanszel; practical "otiatrics," by Dr. Alt, Dr. Frey, and Dr. Alexander; otological operations, by Dr. Frey; and otological operations (*in cadavere*), by Dr. Alexander.

July 16th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Accidents from Fireworks.

JULY 4th was signalised in New York by a more than usually lavish display of fireworks. There were many more or less serious accidents. In connexion with the use of toy pistols—a favourite mode by which young Americans evince their patriotism—an interesting point has been raised by Dr. Connolly, the bacteriologist of the Newark, New Jersey, board of health. Dr. Connolly stated a few days before July 4th that he had found the bacillus of tetanus in blank cartridges on sale, thereby accounting for—to his satisfaction—the origin of the lock-jaw which so frequently follows wounds inflicted by toy pistols. Dr. Park, the bacteriologist of the New York board of health, is not of the same mind with Dr. Connolly as regards this matter. He says that exhaustive investigations made by him two years ago revealed nothing of the sort and that he remains convinced that the infection comes not from the cartridge but from fragments of skin, extensively covered with dirt, which are invariably driven into the wounds. The question is one that can doubtless be settled, although on the face of it there would seem to be a stronger case for Dr. Park than for Dr. Connolly. One fact is certain—that the children of New York are given far too much licence on Independence Day. To allow young boys to carry pistols and to use them to the menace of the public is foolish in the extreme.

Action by a Surgeon to recover a Fee.

A somewhat curious case is being tried in the United States Supreme Court before Referee James E. Kelly at the present time. Dr. Manley is suing to recover $525 (£105) from the executor of the estate of the late Bridget C. Barrett. Dr. Manley's fee was for medical attendance and for operating for the removal of an abdominal cancer. Mrs. Barrett died and her husband refused to pay the bill. One of the witnesses called for Dr. Manley was Dr. Lee who assisted in the operation on the late President McKinley. Dr. Lee, in course of cross-examination, said: "The fact that the person does not live does not relieve the surgeon of his responsibility at the operation he has performed nor does it in any way mitigate his feelings; and, in fact, a man should be paid more when a patient dies than when he recovers." Dr. Lee further said "that a surgeon gets some credit if the operation is a success and is blamed if the operation does not prove a benefit and consequently surgeons have to base their charges on the responsibility they assume." At the time of writing the case had not been decided.

Floating Hospital of St. John's Guild.

Mention has been made in THE LANCET on several occasions of the work done for children in the hot weather by the Guild of St. John. During the summer a hospital for children at the seaside is carried on by this association. Last year two floating hospitals, carrying mothers and children from the tenement district of New York, sailed on every day of the week for a trip in the bay, thus affording the dwellers in this poverty-stricken neighbourhood the opportunity of enjoying fresh pure air for a few hours. Only one floating hospital will be available this summer owing to lack of funds. This decision was reached with much regret at a recent meeting of the board of trustees of St. John's Guild in order that the expenditures necessary for the summer might be kept within the limit of the contributions. The contributions received last year were not sufficient to pay the expenses of the two floating hospitals and the seaside hospital. If, however, enough money is received at an early date the second floating hospital will be put in commission.

July 10th.

Obituary.

ROBERT HALL WOODHOUSE, M.R.C.S. ENG., L.S.A., L.D.S.

BY the sudden death of Mr. Robert Hall Woodhouse at the comparatively early age of 52 years the dental profession loses one of its most distinguished members. He was the son of the late Mr. G. E. J. Woodhouse of Ansty, Dorset, and was educated at Milton Abbas Grammar School. He came to London in 1868, passed the College of Preceptors' examination, and entered at the Middlesex Hospital. He obtained the diploma of M.R.C.S. when 21 years of age and subsequently commenced his dental studies at the Dental Hospital of London. When fully qualified he entered upon private work by assisting his uncle, Mr. A. J. Woodhouse, whom subsequently he joined in partnership. He was for many years officially connected with the Dental Hospital of London as surgeon and as treasurer to the Dental School, holding the latter responsible office till within a short time of his death. He became Vice-President of the Odontological Society in 1892 and President in 1896. In 1901 he was elected chairman of the representative board of the British Dental Association. In a quiet and unostentatious way he did much to raise the status of the dental profession. He was conscientious in all his official duties, attending committee meetings and discharging all work intrusted to him with the utmost ardour and fidelity. Save that he lost two of his sons—one of whom was killed in the South African war—his private and domestic life was uninterruptedly happy. He was married in 1880 and leaves a widow, four sons, and a daughter. Though he worked hard he had the courage to take long holidays and towards the last few years of his life he reluctantly gave up to some extent both hospital and private work in obedience to medical advice. For the last two or three years his health had failed somewhat. Degenerative cardio-vascular changes, probably of gouty origin, manifested themselves, first by retinal hæmorrhage, then by mitral and aortic disease, and then by a slight hemiplegic attack. Whilst recovering from the last-named condition and whilst full of hope that he might shortly again return to work he was seized in the early hours of the morning of July 8th with an attack which was in all probability one of angina pectoris and died within the space of an hour.

Robert Woodhouse was one of the best of men. To know him slightly was to like him and to respect him; to know him well was to love him. He endeared himself to everyone by his simplicity of mind, straightforwardness, integrity, generosity, charity, and consideration for others. His charity was of a high order; when he helped one friend he did not tell another. In his official and professional life he was the very soul of honour. In a word, his personality was such that not only did it influence for good during his lifetime those who were fortunate enough to know him, but it remains in their memories and will continue its influence even though Robert Woodhouse is no more.

FRANCIS HARRISON WALMSLEY, M.R.C.S. ENG., L.S.A., J.P.

THE ranks of our profession in Manchester and Salford have again suffered grievous loss in the death of Alderman Walmsley of Higher Broughton, who has soon followed his neighbour, Dr. R. Crean. He was only taken ill on July 12th and died on the 16th. He was in his seventy-fifth year, but his neat, alert figure and air of activity told little of the weight of years. His father was a medical man, living in Dale-street, not far from the present infirmary, and there Walmsley was born. He decided to enter the medical profession, became a student at the Pine-street School of Medicine, now merged into the medical department of the Owens College, and at the Manchester Royal Infirmary, and became qualified in 1849, soon obtaining an extensive practice. In 1855 he was appointed one of the honorary surgeons to the Salford Royal Hospital, and after many years' service became one of the consulting staff. He took an active interest in public health, was one of the early members of the Manchester and Salford Sanitary Association, and was for a time one of its honorary secretaries. Though having the cares of a large and important practice he set an example of public-spirited activity in municipal work which, if it were more frequently followed by medical men, would be for the great good of the community. So far back as 1864 he was elected a member of the Salford town council, where he soon showed his interest in sanitary and educational matters and discussed them with an ability which "speedily obtained for him recognition from his colleagues as an authority on sanitation and health." At his death he had been an alderman of the borough for nearly 30 years. Soon after the passing of the Public Health Act, 1868, he submitted to the council a scheme, which was carried out, for the formation of a health department and the appointment of a medical officer of health. The question of river pollution has always been a serious one for Manchester and, Salford and Mr. Walmsley laboured hard for many years in the cause of purification, being an early member of the Mersey and Irwell Joint Committee and acting for some time as chairman of its chemical section. In 1877 he became chairman of the health committee of the Salford corporation and chairman also of the river Irwell conservancy committee. He was also one of the commissioners for dealing with the upper reaches of the Mersey. In 1876 he became Mayor of Salford and at the request of the council held the office for a second year. During these two years many important undertakings in connexion with Salford were completed. He was an ardent advocate and one of the original promoters of the Ship Canal. For many years he *was an active member of the first School Board in Salford* and later he was a representative of the magistrates of the borough, one of the governors of the Manchester Grammar School, and also a governor of the Owens College. He was an old member and ex-President of the Manchester Clinical Society, of the Medico-Ethical Society, and of the Certifying Surgeons' Association, and at the time of his death was President of the Medical Guild. From the year 1877 he was one of the magistrates of the borough and took his full share of magisterial work in connexion with asylums, &c. He was a generous supporter of many philanthropic institutions and, as one of the Manchester papers says, "his loss will be felt by the poor as keenly as by those in the very wide circle of his many admiring friends." At the conclusion of the business of the Salford Police-court on July 17th, Mr. Makinson, the stipendiary magistrate, referred in sympathetic terms to Mr. Walmsley's death, to his kindness, and to his having been for many years "one of the most useful, honourable, and upright members of the Salford corporation." One of his brother magistrates also bore testimony to his painstaking, judicious, and discriminating action as a magistrate and said that his "self-denying labours in the interest of the borough for a period of 40 years had rarely been equalled by any other citizen." He was buried at St. John's Church, Higher Broughton, of which he was one of the trustees and an old member of the congregation; his funeral, which was largely attended, gave evidence of a widespread *feeling of* respect and sorrow.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination (Anatomy and Physiology) of the Board at the July quarterly meeting of the examiners:—

Charles Edgar Har
Bartholomew's H
London; Godfr
Skardon Burney,
Cross Hospital;
chester; John I
Westley Burma
and Horace Godden Cole, St. Thomas's Hospital; Henry Frank Collins, University of Madras; Percival Sandys Connellan, University College, Bristol; Paul Alfred Creux, Lausanne University and London Hospital; Horace Leigh Dook, University of Sydney; Horace Charles Colyer and

George
Elliott,
ns, West-
; Vivian
Charles
Gurley.

College, Sheffield, Stanislaus Reader and Russell John Reynolds, Guy's Hospital, Emmanuel Roberts, L.M. and S. Ceylon,

116 gentlemen presented themselves for this examination, of whom *74 passed and 42 were referred.*

SOCIETY OF APOTHECARIES OF LONDON.—In July the following candidates passed in the subjects indicated:—

. G. H.
M. B.
kwater
spital;
Ewing,
on II.),
ge and
. Peel
haring

ections
I. and
II. N.
d II.),
rgeons
ection
lwards
on I.),
; P. A.
inster
ardiff;
S. J.

College
al; C.
; and

dates,
. C. P.
Bremner, F. G. H. Cooke, H. N. Collier, E. H. Drinkwater, J. Ewing, D. R. T. Griffiths, A. E. Henton, W. Miles, and F. J. Turner.

A MEMORIAL WINDOW TO THE LATE MR. T. SMALLHORN.—On July 10th a stained-glass window which has been inserted in Eynsham parish church, Oxford, to the memory of the late Mr. Smallhorn, was unveiled and dedicated. The central figure in the window is that of Christ on the Cross, with St. Mary and St. John on either side at the foot. The four top lights are filled with the figures of St. Leonard (the patron saint of the church), St. Stephen (the first martyr), St. Alban (the first British martyr), and St. Augustine (the first Archbishop of Canterbury). At the bottom of the window two angels bear a scroll with the inscription: "To the glory of God, and in loving memory of Thomas Smallhorn, for 37 years medical practitioner of this district, who died February 9th, 1902, aged 63, this

Communications, Letters, &c., have been received from—

A.—Association for the Oral Instruction of the Deaf and Dumb, Lond., President of; Messrs. Allen and Hanburys, Lond.; M. F. Alcan, Paris; Messrs. Armour and Co., Lond.; Ancoats Hospital, Manchester, Secretary of; Arabella, Ltd., Lond.

B.—Dr. Robert Bell, Glasgow; Mr. Arthur E. Barker, Lond.; Messrs. Bates, Hendy, and Co., Lond.; Birmingham University, Secretary of; Captain R. J. Blackham, R.A.M.C., Wimbledon; Mr. E. Brown, Lond.; T. B. Browne, Ltd., Lond.; Dr. T. E. Bishop, St. John, N.B.; Mr. W. H. Brooks, Leicester; Messrs. R. Boyle and Son, Lond.; Messrs. Burroughs, Wellcome, and Co., Lond.; Mr. W. Foster Brown, Montreal, Canada; Mr. T. Bell, Lancaster; Messrs Bates, Hendy, and Co., Reading; Dr. G. Granville Bantock, Lond.; Dr. F. Burton-Fanning, Norwich; Birkenhead Borough Hospital, Secretary of.

C.—Dr. E. H. Cooke, Lanouli, India; Dr. V. Cardaro, Messina; Messrs. Carnrick and Co., Lond.; Mr. J. F. Cooksey, Malvern; Mr. J. Jackson Clarke, Lond.; Cornwall County Council, Truro, Chairman of.

D.—Mr. F. Deane, Barbados; Devonshire Library, Buxton; Dr. W. C. Daniel, Epsom; Dumfries and Galloway Royal Infirmary, Treasurer of; Dr. Andrew Duncan, Lond.

E.—Messrs. Eason and Son, Dublin; Dr. W. Norwood East, Portland; Mr. D. Edwards-Radclyffe, Lond.; Mr. J. Elenboor, Lond.

F.—Mr. J. E. Francis, Northam; Dr. G. C. H. Fulton, Eston; The Foster McClellan Co., Lond.

G.—Mr. P. C. Glubb, Doublebois; Mr. J. H. Goring, Lond.; Gowers, Ltd., Maldon; Mr. E. Gooch, Lond.

H.—Dr. W. K. Hunter, Glasgow; Dr. A. R. Henchley, Canterbury; Mr. Edwin T. Hall, Lond.; Dr. R. Holt, Burnley; Dr. F. W. Hewitt, Lond.; Heigham Hall, Norwich, Secretary of; Horsfall Destructor Co., Leeds; Mr. C. H. Huish, Lond.; Home for Epileptics, Maghull, Secretary of; Dr. Handfield-Jones, Lond.; Dr. E. H. Harrisson, Holbeach; Hertfordshire County Lunatic Asylum, Clerk of.

I.—Incorporated Society of Trained Masseuses, Lond., Secretary of.

J.—Mr. W. N. Jowitt, Auckland; Dr. Thomas Johnstone, Ilkley; Mr. P. J. Jamieson, Waterlooville; Jeyes' Sanitary Compounds Co., Lond.; Jehu Motor Co., Lond.; Dr. E. Jepson, Durham; J. M. P.; J. M. F.

K.—Dr. C. Gilbert Kempe, Salisbury; Messrs. R. A. Knight and Co., Lond.

L.—Mr. John R. Lunn, Lond.; Messrs. Lee and Nightingale, Liverpool; London and Counties Medical Protection Society, Lond.; Messrs. E. and S. Livingstone, Edinburgh; Mr. T. Lawton, Manchester.

M.—Dr. James More, Rothwell; Dr. Robert Muir, Glasgow; Dr. E. Mackey, Hove; Mr. J. P. Lockhart Mummery, Edinburgh; Mr. C. Mansell Moullin, Lond.; Messrs. Mather and Crowther, Lond.; Dr. L. McManus, Lond.; Messrs. F. Mundy, Gilbert, and Co., Birmingham; Major D. G. Marshall, I.M.S., North Berwick; Dr. W. Murrell, Lond.; Mr. W. P. Montgomery, Manchester; Dr. D. M. Mackay, Brighton; Dr. J. J. R. Macleod, Aberdeen; Dr. Alexander Morison, Lond.; Dr. G. W. Middleton, Cedar City, U.S.A.; Mona Lisa.

N.—Mr. H. Norman, Catford; Dr. C. R. Niven, Liverpool; Mr. G. P. Newbolt, Liverpool; National Society for the Employment of Epileptics, Secretary of; Nursing Institute, Llandudno, Matron of; Messrs. C. A. and H. Nichols, Lond.; National Orthopædic Hospital, Lond., Secretary of; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Messrs. O'Halloran Bros. and Co., Lond.

P.—Miss Kate Pragnell, Lond.; Mr. Percival, Patea, New Zealand; Mr. D'Arcy Power, Lond.; Mr. W. T. Partridge, Lond.; Rev. John Pitkin, Derby; Dr. C. P. Plowright, King's Lynn; Dr. G. M. Pittock, Margate; Mr. A. de Prenderville, Lond.; Mr. C. Pollard, Lond.; Dr. R. J. Probyn-Williams, Lond.; Dr. R. S. Peart, North Shields; Dr. Payot, Valais, Suisse; Dr. E. L. Phillips, Ystrad; P. W. R.; Mr. F. T. Paul, Liverpool; Messrs. Peacock and Hadley, Lond.

R.—Regimental Cottage Homes, Hon. Secretary of; Royal Dental Hospital of London, Secretary of; Dr. W. G. Rodger, Glasgow; Dr. C. A. Rayne, Lancaster; Messrs. H. Repp and Co., Lond.; Mrs. Reubens, Lond.; Royal Albert Hospital, Devonport, Secretary of; Mr. S. Richards, Brighton.

S.—Dr. Charles Slater, Lond.; Dr. P. W. G. Sargent, Lond.; Dr. J. E. Sandilands, Cambridge; Dr. James E. H. Sawyer, Birmingham; Sussex County Hospital, Brighton, Secretary of; Messrs. S. Smith and Co., Lond.; School of Medicine of the Royal Colleges, Edinburgh, Secretary of; Mr. George Spiller, Lond.; Messrs. G. Street and Co., Lond.; Messrs. W. H. Smith and Son, Liverpool; Dr. F. Shufflebotham, Newcastle-under-Lyme; Society for Relief of Widows and Orphans of Medical Men, Lond., Secretary of; Salford Union, Clerk of; Scholastic, Clerical, &c., Association, Lond.

T.—Mr. H. J. Trenchard, Blagdon; Mr. A. F. Tredgold, Guildford; Dr. Edgar Trevithick, Cheltenham; Messrs. Twiss and Browning, Lond.; T. L. B.; Dr. C. N. Thomas, Sydney; Mr. G. Lestock Thornton, Exmouth.

V.—Victoria Hospital for Consumption, Edinburgh, Clerk of.

W.—Dr. Ernest W. White, Dartford; Mr. C. A. Wright, Lond.; Professor B. C. A. Windle, Harborne; Dr. Hale White, Lond.; Messrs. J. Wright and Co, Bristol; Mr. W. F. Walker, Dinas Mawddwy; Messrs. F. Williams and Co., Lond.

X.—X. Y. Z.

Y.—Dr. R. A. Young, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—A. G. B.; A. F. R.; A. P. W.; Dr. G. Anderson, Althorpe; Dr. J. Ford Anderson, Lond.; Ayr County Hospital, Secretary of; A. L.

B.—Mr. J. C. Baggs, Margate; Surgeon-Captain G. S. Bigg, Lond.; Dr. J. F. Boa, Kildonan; Mr. F. V. Bice, St. Columb; Mr. E. Baker, Birmingham; Dr. A. C. Begg, Peebles; Messrs. F. and H. Bell, Nottingham; Mr. G. de V. Belson, Guildford; Mr. H. Balme, Weobley; Mr. C. E. Brettingham, Ilchester; Surgeon R. F. Bate, R.N., North American Station; B. and W.

C.—Dr. F. J. Cooke, Sheffield; Messrs. S. Clark and Co., Lond.; County Hospital, Ryde, Secretary of; C. H. P.; Cantab, Lond.; Mr. A. Clark, Ballachulish; Mr. J. J. Crowley, Cork; Condensed Peptonised Milk Co., Lond.; Dr. C. W. Chapman, Lond.

D.—Mr. G. B. Dixon, Liverpool; Messrs. H. Dawson and Co., Lond.; Messrs. G. L. Daube and Co., Frankfurt; Dunstone Park Sanatorium, Paignton, Medical Superintendent of; Dr. R. A. Dove, Southsea.

E.—Eastern Counties Asylum for Idiots, Colchester; E. B.; E. F.; E. G. H. W.; E. N. R.; E. J. M.

F.—Messrs. Fairchild Bros. and Foster, Lond.; F. V. B.; F. G.

G.—Dr. W. H. Gregory, Beverley; Messrs. Graham and Shepherd, Sunderland; Mr. W. H. George, Lond.; Mr. K. W. Goadby, Lond.; Dr. H. J. Godwin, Winchester; G., Ealing.

H.—Dr. A. Harper, Eastbourne; Mr. J. Heywood, Manchester; Mr. J. B. Hughes, Wavertree; Messrs. Hogg and Son, Lond.; H. P.

I.—International Plasmon, Lond.; Dr. R. J. Irving, Forsinard.

J.—Miss Jones, Old Colwyn; Messrs. Jewsbury and Brown, Manchester; J. D. J.; J. M.; Mr. E. O. Jones, Old Colwyn; J. E.

K.—Mr. W. P. Kirwan, Oranmore; Dr. Kutschersky, Elizabethgrad, Russia; Dr. H. Kerr, Stone.

L.—Messrs. Littlebury and Co, Worcester; L. H.; L. L.

M.—Dr. F. Morris, Cape Town; Mr. R. A. Morris, Bexley Heath; Mr. W. Morgan, Hanley; Mr. T. E. B Meyler, Lond.; Moorcote, Eversley, Medical Superintendent of; Mr. L. J. Minter, Hove; Mr. W. J. H. Macgilvray, Brynmawr; Mr. D. P. Moran, Dublin.

N.—Dr. A. E. Naish, Sheffield; North Villas (32), Camden-square; N. C.

O.—Dr. A. J. Rice Oxley, Lond; Mr. J. M. O'Sullivan, Abercynon; Dr. P. T. O'Sullivan, Cork; Dr. G. Ogilvie, Lond.

P.—Dr. D. T. Price, Portishead; Mr. P. Phillips, Tredegar; Mr. J. Pond, Norwich; P. S. W.

R.—Dr. R. D. Rudolf, Toronto; Mr. S. H. Rentzsch, Week St. Mary; Royal Halifax Infirmary, Treasurer of; R. R. P.; R. G., Mr. R. Redpath, Newcastle-on-Tyne; Dr. W. Rice, Fermoy.

S.—Dr. A. W. Scott, Woodhouse; Messrs. Savory and Moore, Lond.; Messrs. M. Samuel and Co., Lond.; Sunshine, Chislehurst; Mr. H. E. Symes-Thompson, Lond.; Dr. A. Sayba, Cairo; Messrs. H. C. Scales and Co., Wimbledon; S. B.; Dr. E. Stewart, East Grinstead; Dr. G. C. Simmons, Sacramento, U.S.A.; Mrs. Shorland, Porthcawl.

T.—Dr. R. Thurnam, Blagdon; Dr. H. Campbell Thompson, Lond.; T. C.; Messrs. Tatlock and Thomson, Glasgow; Messrs. J. Turner and Co., Queensferry.

W.—Dr. P. W. Williams, Clifton; Mr. G. H. Whitaker, Horwich; Wolverhampton General Hospital, Secretary of; W. J. S.; Messrs. Watkins and Osmond, Lond.; W. C. M.; W. A. S.; Messrs. H. Wilson and Son, Lond.; Messrs. Winning and Fulton, Paisley.

Y.—Y. S.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.

Presidential Address

ON

THE EVOLUTION OF ANTISEPTIC SURGERY AND ITS INFLUENCE ON THE PROGRESS AND ADVANCEMENT OF BACTERIOLOGY AND THERAPEUTICS.

Delivered at the Seventy-first Annual Meeting of the British Medical Association on July 28th, 1903,

By T. D. GRIFFITHS, M.D. Lond., M.R.C.S. Eng.,
PRESIDENT OF THE ASSOCIATION.

Ladies and Gentlemen,—I have chosen for the subject of my address the evolution of antiseptic surgery and its influence on the progress and advancement of bacteriology and therapeutics and the further practical application of our knowledge for the benefit of mankind. This subject is no doubt full of interest to us all, but it is far too extensive to be treated fully in the short space of time in which I have the honour of addressing you.

In the first place, I must ask your indulgence to bear with me for a few minutes in reminding some of you of the practice of surgery as we witnessed it in the best London hospitals some 40 years ago. There are probably many of the younger members of the profession who have no conception of the condition and state of things in surgical practice even at so recent a period. During my student days in the latter end of the "fifties" and early "sixties" the large wards of our hospitals were filled with all sorts of cases indiscriminately—simple and compound fractures, suppurating joints, traumatic, senile, and hospital gangrene, erysipelas, septicæmia, pyæmia, and cases operated on for accidents and diseases, all of which were dressed by the same attendants. Each ward had its set of sponges for the purpose of dressing wounds and these were used indiscriminately for the various cases under treatment. There was no such thing as absorbent cotton wool in those days and great economy was observed in the use of lint. Linseed meal and charcoal poultices were frequently employed to sweeten and to cleanse wounds and to encourage healthy suppuration. "Laudable pus" was a sign of good dressing and healthy action. The operating theatre was often crowded with students from the dissecting-room, and at the operations the great surgeon invariably wore, with evident pride, the same old black frock-coat, buttoned up to the chin, which was kept ready for the occasion in the anteroom and which was well stained and saturated with blood and discharges. It is unnecessary to give a detailed account of the operations, but I may mention that the sponges which were used in the wards were also used at the operating table. Stout silk ligatures were employed to tie the blood-vessels and were left hanging out of the wound to be pulled at from day to day until they were separated by the process of suppuration. I well remember listening on one occasion to a clinical lecture on pyæmia which was delivered by the senior surgeon of a London hospital who confessed to the students that the causation and vagaries of pyæmia were inexplicable. To illustrate this remark, he reminded his class of a strong, healthy young man who had been admitted into the hospital for a trifling accident and who died shortly afterwards from pyæmia, while a middle-aged, drunken, abandoned woman in the adjoining ward was convalescent after a serious operation.

The dawn of antiseptic surgery was now not far off. Schwann's discovery of organic germs in the air led Pasteur to formulate a theory that fermentation is never excited except under the influence of microscopic organisms, and, further, that each particular organism sets up a peculiar species of fermentation. In 1861 Pasteur published the result of his researches on fermentation and in 1863 he demonstrated that putrefaction was caused by minute organisms suspended in the air. Prior to this oxygen had been regarded as the agent which produced it. Lister, now aided by the result of Pasteur's researches, devoted his talent and energies to solve the problem of inflammation and its attendant suppuration in wounds. He was not long in arriving at the conclusion that it was due to bacterial action —putrefaction—and he naturally evolved the idea that if putrefaction of blood serum and destroyed tissue in wounds could be prevented nature would repair the parts much in the same way as she does in cases of simple fracture. He applied this principle to the treatment of wounds in his practice in the surgical wards at the Glasgow Infirmary and afterwards in Edinburgh, using carbolic acid as his antiseptic agent.[1] At the annual meeting of this Association held in Dublin in 1867 Lister communicated to the world the result of his investigation and clearly enunciated the principles of antiseptic surgery which we recognise and practise to-day. Naturally the practical application of these principles has since been gradually modified and improved. The use of the carbolic spray, which was at first a prominent feature of Lister's method, was gradually discontinued. It was found very inconvenient in practice and not so necessary as had been anticipated and it was finally renounced by Lister himself in 1887. When the spray was given up greater attention was paid to the purity of the atmosphere in the hospital ward, and more especially in the operating theatre, and of the instruments and dressings. Then, by a natural transition, attention was turned to the possibility of asepticism, with the view of discarding antiseptics at operations and for the dressing of wounds. After some experience, not a few argued that the acme of success in surgery could be attained by the proper use of aseptic means. There is no doubt a great amount of truth in this but not to the extent claimed by the advocates of asepticism. It must be admitted that the purest air which we can obtain in the operating theatre contains micro-organisms and some of these must alight on the surface of exposed wounds. Fortunately, there is far less danger of septic action being set up by micro-organisms floating in the air than by those which are conveyed to the wound by a foreign substance. The reason of this is probably that the pathogenic micro-organisms suspended in the air are less numerous and, as a rule, less active than those which rest on solid or liquid substances. When no antiseptic lotion or swabs are used the aerial micro-organisms settling in the wound are left to the digestive cells or phagocytes to be disposed of. In ordinary circumstances and with proper aseptic precautions they are able to do so; but it cannot be denied that this delegation of trust to the cells, coupled with the possibility of imperfect sterilisation of the skin and materials used at the operation, involves greater risk of disasters (such as are not unknown to some of us) than when antiseptic means are also used. We must be careful that the pendulum does not swing too far to the aseptic side. It is at all times a difficult matter to guard the surgeon's work effectually by means of sterilisation against every possible access of pathogenic micro-organisms. Why should one trust to asepticism alone when the position can be made impregnable by the assistance of antiseptics which are practically harmless to the healing process? It is therefore evident that the acme of safety is secured in operative surgery by the judicious application of the two principles advocated and practised by Lister. The architect has been very rightly called into service to further the practical application of Listerism. This is especially to be noticed in the construction of modern hospitals and in the addition of new operating theatres to old institutions. They are invaluable in surgical work. Some 36 years ago the mortality from major operations in the London hospitals was about 33 per cent. This high mortality after major operations is now reduced to about 3 per cent., and after minor operations practically to *nil*, as the outcome of Lister's antiseptic principles.

Nursing Institutions and Surgical Homes.

We are now doing, with the aid of public charity, all that science up to date can do to help the poor. Let us now consider for a moment what has been done, what is being done, and what should be done, to meet the requirements of the middle classes for medical and surgical aid in time of need. Their own homes, or perhaps lodgings, are often unsuitable for operative surgery or for serious medical cases requiring skilful nursing. There are, it is true, many surgical homes in our large towns [illegible] ns, mere private ventures [illegible] mendation. I may, pe [illegible] very briefly what provision we have at Swansea for paying patients and for nurses. We have a dual institution—a nursing institute and a surgical home in one. This institution is supported to a very small extent by public subscription. It is managed by a small committee elected by the subscribers and is worked by a resident matron. The nurses are allowed practically all the privileges of a coöperative nursing institute and receive all their earnings with the exception of the incidental expenses of the home. The public is in this way supplied with efficient nurses whose training and character are guaranteed by the institute. The house adjoining, and communicating with the nursing institute, is provided for paying patients who are attended by their own medical men. The tariff varies from three to five guineas a week according to the requirements of the patient.

---

[1] Carbolic acid was used for some time in this country in a diluted state to preserve pathological specimens before Lister introduced it as an antiseptic agent in the practice of surgery.

Although differing from it in some details, the main principle of this dual institution is the same as that of the Home Hospital in Fitzroy-square, London, which was established by Sir Henry Burdett some 26 years ago, and which is now managed by a registered association without profit. Dual institutions, of the kind we have at Swansea, provided with a Listerian surgical home equipped with all the necessary modern appliances, are very much needed in towns to replace many private nursing institutes, some of which are now flourishing by imposing, on the invalid public, women imperfectly trained as nurses, who are engaged at low wages to be let out on hire like cab-horses for gain, and also to replace many of the so-called surgical homes which are totally unsuitable for operative surgery. Self-supporting institutions of this kind must be started in our country by public subscription or by the beneficence of individuals. A certain number of subscribers should be enrolled to elect a committee of management or to form an association, certain advantages being assured for the subscribers. The public would in this way provide for itself a nursing institute and surgical home at minimum cost, with all the advantages of a Listerian hospital, equipped with every modern appliance, and every patient would be able to employ his or her own medical man. As soon as the institution has become self-supporting the small amount of subscriptions contributed for the purpose of securing a trustworthy committee of management and any profit made should be allowed to accumulate for the purpose of extension or the improvement of the building. No party feeling should be allowed to interfere with the management and one or two medical men, elected annually or biennially, as representatives of the profession in the district, should act on the committee of management. I make this suggestion advisedly, as all the medical practitioners in the district would be more or less interested in the institute. It would be wise to avoid every possibility of friction or jealousy in the working of an institution of this kind, which is for the benefit of the public as well as being a great convenience and advantage to the local practitioners.

BACTERIOLOGY AND IMMUNITY.

The brilliant discoveries of Pasteur and the evolution of antiseptic surgery by Lister gave a great impetus to the study of bacteriology, with the result that new and unexpected discoveries were made as to the part played by bacteria in nature. We now find that these micro-organisms have a definite and important place in the scheme of nature. They are distinctly separated by gradation from both the vegetable and animal kingdom. They form a kingdom of their own which we may term the "bacterial kingdom." Their very existence appears to be antagonistic to both animal and vegetable life. Their main object in nature is evidently one of destruction—the breaking up of complex molecules of animal and vegetable substances into simpler combinations. They are nature's scavengers and undoubtedly they are the causal agents of all the communicable diseases to which flesh, and not human flesh alone, is heir.

The varieties of bacteria, differing in size, form, action, character, and power for good or evil, are almost endless. The bacteria with which we are familiar measure from 1μ to $5\mu = \frac{1}{25000}$th to $\frac{1}{5000}$th of an inch. If each bacterium measured $\frac{1}{10000}$th of an inch in length and $\frac{1}{25000}$th of an inch in breadth it would take 250,000,000 of these micro-organisms to cover one square inch of glass. These micro-organisms grow with great rapidity—a bacterium may reach maturity and divide or split into two in 20 or 30 minutes. If it divided into two every half hour it would produce a colony of over 16,000,000 in 12 hours. It has been shown in the laboratory that the growth and rapidity of reproduction and the character of bacteria depend upon their surroundings and that their virulence may be attenuated or increased according to circumstances. It is therefore evident that the law of evolution and involution of the animal and vegetable kingdoms applies also to bacteria. Supposing that the evolution of a new species of plant—say an annual—takes 336 years, then if the law is equally applicable to micro-organisms a bacterium in favourable circumstances would take only one week to run through 336 generations, provided it took only 30 minutes to reach maturity and division, and so a new species might be thus rapidly evolved.

I wish also to remind you, for the purpose of my argument, of the important fact that a bacterium may have two states or stages of existence. One is the active or vegetative stage and the other is the spore or resting stage. In the latter state, which may be compared to that of a hard nut or seed, it may remain dormant for a long time until the surroundings favour its development into the active state. This, as I shall show, has an important bearing on the treatment and etiology of specific diseases. Pasteur's and Davain's discoveries led up to Koch's investigation. Davain discovered bacteria in the blood of animals suffering from anthrax in 1863, thus confirming the observations made by Pollender in 1849 Koch repeated the experiments and finally established in 1876 the causal relationship of bacteria and disease. Tuberculous disease had been proved by Villemin to be inoculable and in some countries it had long been believed to be infectious, but it remained for Koch to demonstrate in 1882 that tuberculous disease was due to the agency of a micro-organism. He proved that a bacillus played a part in the production of tuberculosis which is analogous to that which is played by torula cerevisiæ (yeast bacillus) in fermentation. The tubercle bacillus feeds, grows, multiplies, and produces its toxin at the expense of the surrounding tissues very much in the same way as the yeast bacillus feeds, grows, multiplies, and produces its toxin (alcohol) at the expense of the saccharine solution in which it is placed. The principle discovered by Pasteur in the processes of fermentation and putrefaction was proved, after years of close investigation by Koch, to be absolutely identical in the development of tuberculous disease in the animal body. He demonstrated the bacillus in the tissue and cultivated the organism outside the body and observed the formation of the toxin. The same remark may be applied to diphtheria (diphtherisation). The diphtheria bacillus grows, feeds, and multiplies on the mucous membrane and there forms its toxin. If we compare the processes of fermentation, tuberculisation, and diphtherisation a little further we may gain an idea as to the nature of immunity which is far more rational than any of the numerous and complicated theories and suggestions already proposed. After a certain stage of fermentation the torula cerevisiæ (the fermenting agent) ceases to act, it becomes inert, and falls to the bottom of the vat. Tubercle bacilli and other pathogenic bacteria behave in exactly the same manner. After a certain stage of crowding and production of toxin they become inert and are at last practically killed by their own poison. The same thing happens in the overcrowding of animals. When yeast has ceased to perform its functions in the vat the alcohol (fermentation toxin) which it produced, if not protected artificially, is attacked by another bacterium, the germs of which are always at hand, and it is soon reduced to vinegar, which possesses different properties. Even if more must is added to the vat the acetic acid fermentation will continue. It is well known that the toxin produced by one bacterium can be destroyed or metamorphosed by the action of another. Advantage has already been taken of this power by sanitarians for the disposal of sewage, aerobic and anaerobic bacteria being called into service to do the work desired. When the pathogenic bacteria are destroyed by their own poison and when this poison in its turn is metamorphosed into a simpler compound by other bacteria, in the same way as alcohol is changed into vinegar, the patient is convalescent and as long as the spores of the second bacteria remains in the blood the patient is rendered immune[2]; but if the toxin of the first pathogenic bacteria has been removed by the leucocytes or destroyed by the oxygen of the red blood corpuscles, or, in fact, digested, or if the spores of the second set of bacteria are no longer retained in the circulation or tissues of the body, the patient has no immunity. When the germs which secure immunity become attenuated the immunity is lessened and when they are destroyed the immunity is lost for the time.

---

[2] Rheumatism produces immunity to tuberculosis and vice versa.

In convalescence after diphtheria the toxin, which may be called for convenience sake "diphtherin," is no doubt metamorphosed and its toxic character is destroyed by another ferment, and the new or metamorphosed product may be called "met-diphtherin." As long as the met-diphtherin or its causal agent remains active or dormant it confers immunity on the individual body which it occupies. Diphtherin antitoxin is the met-diphtherin obtained from the blood of the horse, which confers immunity on the human subject. When this is used at an early stage of diphtheria it damages the vitality of the diphtheria bacilli and reduces their diphtherin to met-diphtherin which is harmless. Pasteur demonstrated that when grapes are ripe in October a large number of the berries and their stems have their skins covered with spores of torula cerevisiæ ready to develop under favourable conditions. This happens immediately when the grapes are crushed and the solution is kept at a proper temperature. He also demonstrated that yeast can be weakened (attenuated) by nursing it in a weak solution of sugar until eventually it is unable to cause any fermentation. We may also study with advantage the processes of sporulation and vegetation of yeast cells, which are analogous to those of pathogenic bacteria. By the process of sporulation the yeast cell contracts and hardens like a grain of corn and retains its vitality in this condition for months or years. The same is also true of pathogenic bacteria which exist either in the state of vegetation or sporulation.

Professor G. Sims Woodhead pointed out at our annual meeting last year that diphtheria bacilli may remain dormant in the throat for months. This is an important fact worth remembering, inasmuch as it may account for anomalous outbreaks of acute specific disease.

Considering the rapidity with which bacteria grow and attain their maturity and multiply, and considering how easy it is to attentuate or to increase their virulence, it is logical to infer that the process of evolution may be brought about very quickly, as has already been pointed out. It is therefore natural to infer that, under favourable conditions, bacillus [illegible] into bacillus typhosus, both [illegible] ppearance, and the so-called [illegible] phtheria bacillus, which are also alike in appearance, &c. Like the ripe grapes with germs of yeast in the dust on their skins and the surface of their peduncles, we also have germs of specific diseases about us which only require certain conditions to develop them. The late Sir James Paget, in his memorable address at the International Medical Congress in London in 1881, dwelt at some length upon the importance of studying the physiology and pathology of plants to help the advance of knowledge of human pathology. Nature always works on definite plans but with ever-varying difference.

THERAPEUTICS.

Both bacteriology and Listerism have greatly helped to advance our knowledge of the action of medicine. Therapeutics have now been raised in many departments from the plane of empiricism to that of science. Peruvian bark, the active principle of which is quinine, was accidentally discovered to be of great value in the treatment of malarial fever. The discovery was the result of observation, but the knowledge gained was entirely empirical. Prior to the discovery of the hæmamœba and the observation of its action on the red blood corpuscles, and until the Listerian property of quinine was ascertained, we had no idea how the drug acted as a curative agent. It is now evident that it acts simply as an antiseptic in destroying the malarial parasites which are conveyed to the human body by mosquitoes, and [illegible] her it has any other beneficial [illegible] The world is greatly indebted [illegible] ne we were glad to see in the [illegible] and to Major R. Ross for their discovery of the part played by mosquitoes in the causation of malarial fever.

Very much the same remarks may be applied to salicin, salicylic acid, and the salicylates, which are powerful antiseptics. The discovery that these drugs were specially valuable in the treatment of rheumatic fever was accidental also. It is now acknowledged that rheumatic fever is due to a micro-organism which probably gains access to the circulation through the tonsils or mucous membrane of the pharynx. Sore throat is a frequent precursor of acute rheumatism. It is probable that scarlatinal sore throat predisposes the patient to infection by rheumatic micro-organisms, over which the salts of salicin have a lethal action.

Mercurial salts are the most efficient antiseptic agents we possess in surgical practice and it may be argued that the therapeutic action of mercury, when administered internally, is to be accounted for, to a great extent, by its antiseptic property; hence its specific action on syphilis, which is now stated to be a bacterial disease. It has been recognised for many years that mercury is a valuable remedy in tonsillitis which is also, no doubt, caused by micro-organisms. Dr. Jamieson of Edinburgh pointed out some years since[3] that mercuric chloride is most valuable as a bactericide in the treatment of scarlet fever. Arsenic, like mercury, a valuable remedy, is a powerful bactericide. It has been stated lately, on very good authority, that it is useful in the treatment of tuberculosis. It is well known as a most valuable remedy in malarial diseases. Its lethal action on other micro-organisms, which we have not yet discovered, may account for its therapeutic value in the treatment of anæmia, pernicious anæmia, skin diseases, and degenerative changes which are attributed to "premature old age." It is possible, and very probable, that micro-organisms are active agents in the production of atheromatous changes in the vascular system. We now acknowledge that the deposit of tartar on the teeth is the product of certain bacteria; even the gouty deposit in various tissues of the body should probably be credited to some as yet unknown bacilli. In any case, the facts before us are sufficient to justify the suggestion as a working hypothesis. Iodine is another powerful antiseptic agent and a cell stimulant favouring absorption of exudative and inflammatory products; as it possesses these two properties to a high degree and is readily tolerated by the animal economy it ranks among the most useful remedies we have in our Pharmacopœia. Iron may act as a powerful antiseptic remedy indirectly. In cases of anæmia it improves the condition of the red blood corpuscles which are the carriers of oxygen in the animal economy.

The most approved local treatment of skin diseases, as well as those of the mucous membranes, may be briefly stated to be a judicious use of antiseptics alone or in combination with some sedative or stimulating agent as the case may require. All the useful remedies we employ in the treatment of inflammatory trouble of the genito-urinary passages are antiseptics and although the amount which is passed by the urine is very small and much diluted, yet it is sufficient, within a certain limit, to destroy by degrees the offending bacilli. This gradual process of destroying bacteria can be imitated in the laboratory. The virulence of bacteria can be attenuated by growing the organism in the presence of weak antiseptics and can be weakened also by injecting certain chemical substances along with them into the animal body. All conditions which are unfavourable to the growth of bacteria attenuate their virulence, render them innocuous, and finally destroy them. Sunlight and the Roentgen light are fatal to bacteria. The open-air treatment of consumption, which is a combined aseptic and antiseptic treatment, is an illustration of the value of light, pure air, and ozone. The effect of heat and cold on bacterial life is a most interesting and important subject. Every species of bacterium has its latitude of temperature in which it can flourish, a few degrees above or below being fatal. Bacteria differ in their power of resistance to the toxic action of antiseptic agents. Tubercle bacilli are readily destroyed by iodoform, while other micro-organisms flourish in it Even mercuric chloride solution of moderate strength does not kill all bacteria equally quickly. Time will not permit me even to enumerate, much less to expatiate on, all the antiseptic agents which we have now at our command. We now see that Listerism is as valuable in the practice of medicine as it is in surgery.

PUBLIC HEALTH.

The practical application of our knowledge for the benefit of the public health has not kept pace with the great progress made in medicine and in surgery during the last 36 years. The Public Health Act of 1875, which was very comprehensive and well conceived, has been of great service in improving the sanitary condition of urban and rural districts; but in spite of the amending Acts, and in spite of the Local Government Act of 1894, it is now clear that both the law and its administration are defective in many points been gained. This applies emphatically to the whole range of complaints with which I am now concerned, for the term "infective," according to modern teaching, has come to have a very precise pathological signification, founded on a scientific basis, and the outcome of the researches and experimental investigations of Pasteur, Lister, Koch, and their followers. To this doctrine the medical faculty generally, with but comparatively few exceptions, has given its cordial and uncompromising assent. It affirms that every infective disease is the result of the direct action upon the body of one or more living pathogenic micro-organisms or bacteria and in many instances it has been positively demonstrated that a specific organism is the cause of a particular disease and of no other. It must be clearly understood that according to this definition the term "infective" is not synonymous with "infectious," which implies that a complaint is capable of being communicated, either by direct inoculation or contagion, or indirectly in various ways, from person to person, or from some other animal to man. In short, an infectious disease must be infective, but an infective complaint is not necessarily infectious.

---

[3] Brit. Med. Jour., 1887.

I need scarcely remind you that a number of contagious diseases have long been known to be due to obvious or easily demonstrable parasites, animal or vegetable, and it is interesting to note in passing that the investigations of recent years have added, and are still adding, to the list, of which actinomycosis may be cited as a conspicuous example. The organisms which we are now dealing with, however, are on an infinitely more minute scale and the profession as a body has to accept in the main what trained bacteriological experts tell us about them, their toxins, pathological effects, antitoxins, and other details. The theory of *contagium vivum* is of very ancient date, but the positive demonstration of the nature of the so-called virus was only started and has been progressively accomplished well within the last half century, while the investigations which are still going on in all directions are adding daily to our knowledge and to the practical results following therefrom. These investigations, however, have shown that there are still not a few difficult questions to be solved and we must be on our guard against too hasty conclusions or generalisations on insufficient data. It is a remarkable fact that in the case of some of the most prominent infectious diseases with which we have long been familiar no definite or specific organism has thus far been recognised, at least so as to be acknowledged by competent and trustworthy authorities, and we cannot accept the alleged discovery of such organisms in individual complaints unless and until they have received the stamp of the approval of such authorities. At the same time we may be certain that they exist, and this fact may be accepted as the basis of a sound working hypothesis.

When we look back upon the history of medicine during the past half century, but more especially during recent years, we cannot avoid being struck with the additions which have been made to the group of infective and infectious diseases and with the way in which others, though previously known, have come so much more prominently to the front. The multiplication of these complaints has been partly due to the differentiation of diseases which were formerly regarded as identical as the result of careful and systematic clinical observation and post-mortem examination. It is, however, to the revelations of bacteriology that we mainly owe these additions which in the first place have brought all inflammatory, suppurative, and septic conditions within the infective group. Among special medical diseases coming under these categories which, according to modern views, are thus definitely classed as infective may be mentioned pneumonia, rheumatic fever, gonorrhœal synovitis, possibly rheumatoid arthritis, malignant endocarditis, certain acute throat inflammations, and different forms of meningitis. But, further, bacteriology has proved conclusively that several unsuspected complaints or morbid conditions are infective or even infectious, of which the most remarkable are tetanus, tuberculosis, and malaria. Influenza and diphtheria are striking examples of infectious diseases which seem to have developed into terrible scourges within living memory, though they are by no means new complaints, and their prevalence can be easily explained in the light of modern knowledge. Anthrax and glanders have come to the front because they illustrate in a remarkable way certain important points relating to the pathology of micro-organisms. Glandular fever, specially studied in this country by Dawson Williams, is an interesting addition to the acute infectious diseases. I have already alluded to malaria, and I wish now to draw special attention to the fact that the effects of this condition as well as several diseases always known to be infectious, such as cholera, dysentery, plague, and yellow fever, which originate and prevail chiefly in tropical or subtropical countries, and with most of which we as a nation had formerly little or no direct concern, have nowadays assumed a conspicuous prominence and have become of extreme practical importance. New diseases belonging to this category have also been, and are still being, brought to our notice, such as blackwater fever, Malta or Mediterranean fever, trypanosoma, sleeping sickness, and beri-beri. So important have they become that "schools of tropical medicine" have been, as you are aware, established in different places for those who need special training in relation to these diseases. The free intercommunication which now exists between Europe and tropical countries, many of them far distant, has brought these complaints to our very door, so to speak, and we are compelled to deal with them seriously and to do what lies in our power to cope with them. And more especially Great Britain as a nation cannot ignore these complaints, as many of the regions in which they prevail form an integral part of this vast empire. We are, I presume, most of us "Imperialists" nowadays, but in this relationship, at any rate in existing circumstances, no one dare be a "Little Englander." We cannot evade the responsibilities which the Imperialistic sentiment brings with it with regard to these terrible diseases, whether from the point of view of humanity and philanthropy; of trade, commerce, mining industries, or other remunerative enterprises in which this country is now so actively and widely engaged; of military engagements; or of Christian missionary work. In this connexion I cannot refrain from calling attention to the intelligent, far-seeing, disinterested, and truly patriotic efforts made by our distinguished countryman, Sir Alfred L. Jones, a native of Carmarthen, to promote the study of tropical complaints on the spot, as well as at the Liverpool School of Tropical Medicine, and to do all in his power to endeavour to diminish their prevalence and gravity, or even to exterminate them altogether.

PRACTICAL ETIOLOGY.

I now proceed to deal briefly with certain points relating to what I may term the practical etiology of infectious diseases. With this aspect of the subject all members of the profession, whatever their position or sphere of work may be, are unavoidably and deeply concerned; and there is hardly any branch of medicine in which greater or more beneficent progress has been made, thanks mainly to those who have worked in the various departments of public health and who have taken an active interest in sanitation.

Now the first question to be determined from the point of view of practical etiology is whether a particular disease is infectious in the true sense of the term or not. As I have already remarked, some affections have been in modern times definitely proved to come under this category which previously could not be so regarded on any scientific grounds, of which tuberculosis is a conspicuous example. The dogmatic statements made on this point about other diseases which seem to be undoubtedly infective, such as pneumonia and rheumatic fever, must, however, be received with caution until further and more extensive inquiry has been made, though in the meantime it may be well to regard them provisionally as infectious in certain circumstances and to act accordingly. At the same time we should not ignore or forget the ordinary causes which long experience has taught us are capable of exciting these diseases, such as chill produced in various ways.

In the next place, it is very desirable, with regard to each individual infectious disease, to have as definite a knowledge as possible concerning its period of incubation, the degree of infectiousness, and the period of infectivity—that is, how long infection lasts in a particular case. In relation to many of the best known affections belonging to this group these points have been now established fairly accurately, but there is still much to be done in this direction. As regards the degree of infectiousness, undoubtedly the gradations in this respect between different diseases are by no means so clearly recognised as they ought to be, even by the profession sometimes, but more especially by the laity, and consequently one cannot help being struck with the want of proportion and tendency to exaggeration exhibited in the way in which certain of these complaints are dealt with. For instance, pulmonary tuberculosis is really nowadays looked upon by the large majority of persons as if it were a most virulent infectious disease, equal to small-pox or scarlet fever, which is, of course, absurd, but the idea has none the less got a firm grip and is doing an infinite deal of serious harm in different ways.

The most important and striking advance which has been made in relation to the practical etiology of infectious diseases is in our knowledge of the sources, modes, and channels of infection, both generally and with reference to individual members of the group; of personal predisposing conditions; and of the external circumstances which favour or promote their endemic and epidemic prevalence. On these matters our information was, within my own recollection, extremely vague and indefinite and many most significant facts with which we are now quite familiar were utterly unknown and even unsuspected, except by a few intelligent observers and earnest workers.

The question of the communicability of certain infectious complaints from person to person through the atmosphere is an extremely important one, especially when a number of individuals are aggregated together, as well as the distance to which the contagium can be thus conveyed and the agencies which assist in its dissemination. This question is by no means settled in not a few instances. Let me refer more particularly to typhoid fever and small-pox. While typhus fever has always been regarded as a disease strongly infectious from person to person, typhoid fever has been practically dealt with by the large majority of the profession as being free from danger in this way. Now, however, the tendency undoubtedly is, and probably rightly, to be much more careful as regards enteric fever from this aspect, and there is a growing objection to the admission of patients suffering from this complaint into the ordinary wards of general hospitals. Small-pox is still more important. Of course, it is a fact familiar to all that this complaint is highly infectious through the atmosphere, but how far it can be thus carried, particularly from a small-pox hospital or hospital ship and the influence of winds in conveying the infective agent, is another matter and may involve troublesome or even momentous consequences. I have noticed in the medical press recently directly contrary opinions on this question expressed by those who apparently have had equal experience and opportunities of arriving at a practical conclusion. How far emanations from drains, sewers, defective water-closets, and the like can produce so-called "blood poisoning" and other indefinite infective conditions is another question which needs clearing up.

Passing now to the more practical results of modern investigations as to infection the following facts are worthy of special attention.

1. As a starting point infective micro-organisms have been found and demonstrated in the blood; in certain secretions; in the excreta, urine as well as fæces; in the cutaneous structures or shed epithelium; possibly in the expired air; and in specific lesions, morbid products, and discharges from the body of various kinds. Hence we can readily understand how and why most of the diseases with which these organisms are associated are likely to be transmitted from individual to individual; how the infected materials may contaminate fomites and be thus conveyed far and wide; how they retain their activity in a dried state for an indefinite period, thus rendering apartments or other places infectious; and how they may be "air-borne," being carried about by atmospheric currents or winds and afterwards either inhaled or swallowed by persons, it may be, far removed from the original source of infection, remote epidemics being thus not uncommonly originated.

2. The communicability of certain grave diseases by the contamination of drinking water in different ways, but especially by admixture of infected excreta, is an established fact the importance and far-reaching consequences of which it is impossible to estimate or to realise in any adequate degree. Why such contamination should take place is often obvious enough, but it is rather startling to be told, as we have been within a recent period, that unsuspected and most inviting "spring water" may be a highly dangerous source of enteric fever. I have a very vivid recollection of an epidemic of cholera and another of enteric fever in Carmarthen when I was an apprentice, and in the light of modern knowledge there can be no doubt but that they were the result of infection through an excellent "spring water" in common use which had become contaminated with the specific excreta. While we are now all so familiar with the dangers of infected water, it required some hard teaching to convince the profession and the laity of its reality and we ought never to forget the excellent work done by Snow-Beck, Ballard, and other pioneers in relation to this matter. Even at the present time, moreover, my experience has led me to the conclusion that these dangers are by no means always appreciated as they ought to be, and I have met with not a few glaring instances of the injurious effects of ignorance or carelessness. In this connexion I may refer for a moment to the vigorous and praiseworthy efforts of my former pupil and friend Dr. H. E. Leigh Canney, who at any rate is fully alive to the evils and risks of water infection, to establish a Royal Water Corps as a special section of the Royal Army Medical Corps, the functions of which would be to prevent enteric fever, dysentery, cholera, and diarrhœa. It does not look, however, as if his project had "caught on" with the governing bodies and no doubt there would be serious practical difficulties in carrying it out.

3. One of the most striking additions in modern times to our knowledge regarding the conveyance of infection is in relation to food. In this connexion milk and its products stand out very prominently, not only on account of their frequent contamination by infectious materials, probably mainly from the deliberate addition of tainted water to milk, but also because this valuable food may convey organisms directly from diseased animals by which it is secreted. No doubt you are all familiar with the present controversy as to the communicability of bovine tuberculosis to the human subject in this way, but, notwithstanding Koch's dogmatic negative statement, more recent investigations, prominent amongst them those of Professor D. J. Hamilton of Aberdeen and Mr. M'Laughlan Young in this country, seem to have demonstrated conclusively that this authority, in spite of his high scientific claims and standing, is entirely wrong. At any rate, it would be a grave mistake to act on Koch's view or to ignore in the slightest degree the possibility of the conveyance by milk of the infective agents of tuberculous or other diseases. I will merely allude in passing to the probable danger in some cases of infection through meat, fried fish, uncooked vegetables, or various foods accidentally contaminated, as from being kept in infected rooms, or it may be by winds carrying organisms from a distance. But what shall I say about shell-fish? Dare I whisper in this neighbourhood the word "oysters"! Unfortunately there can be no doubt but that these "luxuries" are not uncommonly potent agents in originating enteric fever, and the same statement applies to the more humble and democratic mussels, cockles, or even periwinkles, as well as possibly to lobsters, crabs, and the like. May I venture to suggest that it is extremely desirable for all concerned that everywhere the utmost precautions should be taken to prevent as far as possible these most desirable and valuable articles of food from being contaminated by sewage of any kind, and the deliberate feeding of oysters on such materials, for commercial purposes, cannot be too strongly condemned and ought to be put a stop to by the most stringent legal measures.

4. The rôle which different animals play in the transmission of infectious diseases to man is another aspect of the subject upon which modern observations and researches have thrown remarkable light. Of course the relationship in this respect of such diseases as hydrophobia and glanders has long been recognised. The idea of direct infection through the milk or flesh of infected animals is of comparatively recent date. The danger of infection being carried directly by domestic animals, such as birds, cats, and dogs, from person to person, or perhaps because they themselves are suffering from certain diseases, is not yet appreciated as it ought to be. The rôle played by such unwelcome "large vermin" as rats and mice in relation to plague, and probably some other complaints, is now familiar to all. Flies, cockroaches, and the smaller but too well-known personal vermin may no doubt be instrumental in conveying infection in certain cases, and flies may thus taint food. But the most remarkable and important revelations which modern investigators have given us as to the transmission of infection by animals are those relating to mosquitoes. The discovery and demonstration of the connexion between these minute torturers of humanity and malaria, in which Sir Patrick Manson and Major Ronald Ross have taken such a prominent part, has already worked incalculable good and promises in the future to revolutionise the conditions of life in many parts of the world, to the inestimable advantage of the

communities who are native to the district as well as of Europeans whom circumstances compel to reside there. The same statement applies to yellow fever and probably to other affections prevailing in climates and localities where mosquitoes abound.

5. The question of the relation of infection to soil, place, and particular houses or groups of houses is a very important one, but about which there is at present much that is uncertain and indefinite, and that needs to be worked out more fully before any positive conclusions can be arrived at with regard to individual diseases. The fact that the tetanus bacillus comes from the soil, being especially associated with garden earth or horse-dung, is well established and was a most interesting and important modern discovery. Beri-beri is regarded by Manson as a "place disease," due to a toxin produced by a living germ operating in some culture medium outside the body. Of course, houses or rooms may, when once infected with the organisms of well-known diseases, retain them indefinitely and thus be the means of originating similar affections after long intervals.

6. Another most important aspect of infection from a practical point of view is the fact that we are every one of us always carrying about in various parts of our bodies microbes which, while habitually innocuous and non-virulent, may under favouring conditions, so far as they are concerned, become extremely virulent, or possibly specific, to our personal undoing; or we may even be harbouring in our mouths, throats, noses, ears, and thereabouts specific germs by which, quite unintentionally, we are liable to infect others at any time while we ourselves go scot-free. It is certain that very dangerous germs may lie dormant for an indefinite period in the human body, such as the bacilli of diphtheria, influenza, or tubercle, or their spores, and either lead to unexpected auto-infection or to the corresponding specific disease in others. When suppuration is set up in any part of the body, moreover, it is wonderful how disagreeable the different organisms can be in the way of migrating to various other structures and producing a similar condition in connexion with them.

7. I must just refer, lastly, to the progress made in our knowledge of the channels of entrance of microbes into the system and the modes in which they are disseminated. Here again the mouth, the throat, and the neighbouring parts come into unpleasant prominence, especially the tonsils, in connexion with scarlet fever, rheumatic fever, tuberculosis, actinomycosis, and other diseases. The dissemination of the organisms by cells, the blood stream, and the lymphatic channels is also an important fact positively demonstrated and in this dissemination embolism not uncommonly plays a conspicuous part.

MORBID ANATOMY AND HISTOLOGY.

I can only touch very superficially on this aspect of my subject, in order to draw attention to two or three of the more important points. Our knowledge of the actual nature and characters of the specific pathological lesions of most of the infectious diseases, both macroscopic and microscopic, has, I need hardly say, made enormous strides and much of it is in reality, for obvious reasons, of quite modern discovery and demonstration. Further, the recognition of the fact that certain pathological manifestations in connexion with internal organs or other structures are an essential part of an infective disease and not merely accidental complications or sequelæ, as was formerly supposed, if they were recognised at all, is an important step in advance. This may be exemplified by the relationship of renal disease to scarlet fever and of cardiac inflammations to the rheumatic state. At the same time our knowledge of what may be fairly regarded as complications and sequelæ of this class of complaints has not only greatly increased but has become much more definite and intelligible. As important pathological factors which are particularly liable to bring about complications and sequelæ in infective diseases may be mentioned congestion, inflammation, suppuration, embolism or thrombosis, and acute degenerations.

The last point I would refer to in this connexion is the very striking and most valuable results which have been derived from experimental investigations on animals with regard to the pathological effects of different pathogenic microbes and their toxins and more especially in relation to the nervous system. These have a direct bearing on the nervous sequelæ which so often follow several of the infectious diseases and which have come so prominently before the profession during recent years.

CLINICAL HISTORY AND PHENOMENA; DIAGNOSIS.

While we have to record certain distinct advances in knowledge of the clinical history of several of the infec diseases, and while important additions have been made our means of diagnosis, to which I shall presently refe cannot be said, speaking broadly, that the progress in direction has been anything like commensurate with relating to their pathology and etiology. Of course we better acquainted clinically with such diseases as ent fever, diphtheria, influenza, and tropical fevers because have become more familiar to the profession generally, modern knowledge enables us to understand and to expl more clearly their clinical phenomena on a patholog basis. Moreover, now and then careful observation reveal new symptom or class of symptoms which proves to be conspicuous diagnostic significance, as in the case of "prodromal exanthems" of small-pox and Koplik's "buc spots," which seem to be of real value in the early recog tion of measles.

I presume it will be acknowledged on all hands that early and correct a diagnosis as possible is of the utm importance in the case of the several infectious disea which come under observation in the ordinary routine medical practice. This is of special moment when deal with numbers of individuals brought into more or less timate association; and I mention schools as a promine and constant source of anxiety and worry to all concern in relation to these complaints. Now it must be insist upon at the outset that such diagnosis is in the lar majority of instances actually and positively founded very simple data, easily observed and readily studied that is to say, we must as a matter of general rout rely, and can safely rely, in the diagnosis of a partic infectious disease, as regards its actual clinical history, its mode of onset or invasion, its course or progress, a the simpler phenomena which personally I always speak as "symptoms," as distinguished from those revealed b skilled physical or other special methods of investigatio And, in my opinion, it would be a serious mistake encourage in any way the idea that in the ordinary run cases of this class of complaints we cannot come to a definite conclusion except with the aid of modern scienti methods. Under the category of symptoms it must be note that subjective morbid sensations, either general or local, a very conspicuous and significant in several diseases of a infectious nature. But, of course, it is from objectiv symptoms which we can ourselves note and investigate tha we derive our chief and more trustworthy information. The may be evident or attract attention at once and one or mo may be even quite pathognomonic, such as the peculia cough of pertussis or the nervous and muscular disorders characteristic of tetanus and hydrophobia. The cutaneous eruptions or rashes of the exanthemata constitute a most important group of objective symptoms with which it is essential to be thoroughly conversant in all their details. The external manifestations of such infectious diseases as mumps, syphilis, plague, anthrax, and glanders also come under this category. So-called catarrhal and throat symptoms are of common occurrence and the affected parts can, as a rule, be easily seen or felt; while such a disease as gonorrhœa is recognised by its specific urethral discharge. The phenomena associated with the well-known internal lesions of such diseases as typhoid fever or dysentery are, as a rule, very significant or even characteristic. Of course, such affections as pneumonia or rheumatic fever, which are now classed among the acute specific fevers, as well as tuberculous affections will have their own peculiar localising symptoms.

There are certain general symptoms which, in a large proportion of infectious and infective diseases and cases, demand careful observation and study. Those indicative of the "febrile state," I need scarcely say, often assume a special prominence. From this point of view I presume that every medical man, as a matter of routine, "feels the pulse," "looks at the tongue," and "takes the temperature." In some instances both the pulse and the tongue afford special information, but I am not at all sure that this fact is always duly appreciated nowadays. In this connexion one can scarcely avoid making some allusion to the "clinical thermometer." This small instrument is, I need hardly remind you, at present universally recognised as an invaluable and often essential aid in diagnosis in most infective diseases, not only in determining the existence of pyrexia, but also in studying its degree, course, and other details. Quite recently there was an interesting correspondence in

British Medical Journal concerning the history of the thermometer for clinical purposes, to which I may be permitted briefly to refer. In the issue of April 4th Sir William Broadbent brought forward the historical fact that an army surgeon, Dr. Archibald Arnott, recorded the temperature in the case of the First Napoleon at St. Helena in 1821. He says that the record is set down as if it were a regular part of routine observation and Dr. Arnott must have had a thermometer with him for the purpose. In attempting to trace back how Dr. Arnott came to adopt the nstrument he thinks it probable that he learnt its use n the wards of the Edinburgh Royal Infirmary. He calls attention to the fact that Dr. James Currie, of Liverpool, whose first edition of his work on "*Cold Affusion in Fever*" was published in 1797, was an Edinburgh graduate and was irst led to employ the thermometer by a debate at a society of students there. Sir William Broadbent's interesting statement led to further communications, showing that the bodily emperature was systematically recorded in febrile diseases by several observers during the latter half of the eighteenth and first half of the last century, amongst them by Dr. Livingstone, in Africa, in 1853. As is well known, however, t is to the observations and writings of Wunderlich, about he year 1860 and subsequently, that we owe the general recognition of the value of clinical thermometry. Sir Samuel Wilks states that he was led to procure an instrument for Guy's Hospital by reading the chapter on the subject in Aitken's "Practice of Medicine." He thus describes it: "I think it was nearly a foot long and was so great a novelty that it was taken to a South-eastern meeting of the British Medical Association for exhibition, where the members regarded it with much curiosity and interest, although, I am sorry to say, one or two with ridicule." What a contrast to the neat and convenient, easily applied, very rapid, and most accurate recorder of bodily temperature now at our command.

I have thus dealt with the symptomatic aspect of infectious diseases somewhat at length—in the first place, because I regard it as of fundamental and essential importance in the ordinary run of cases, notwithstanding the progress made in scientific clinical methods; and secondly, as a protest against the tendency amongst the rising generations of our profession, which it is impossible to overlook, either to ignore common symptoms altogether, as if beneath their notice, or to take no trouble whatever either to understand or to study them. I would remind them that their predecessors—not so very long ago either—had no other data upon which to found their diagnosis, and practically no scientific instruments or apparatus to help them, and yet most of them knew pretty well what they were about. In relation to the complaints with which we are now concerned, it is usually a combination of symptoms which are of diagnostic significance; and in many instances they are more or less characteristic even during the so-called "premonitory" stage, though they usually become more definite later, and it may be impossible for a time to arrive at a positive opinion. As already stated, in some of these diseases one particular symptom or class of symptoms is, however, quite pathognomonic.

I now pass on to refer briefly to other modes of investigation not uncommonly of much diagnostic value in relation to infectious and infective diseases, which are also comparatively easily practised and are supposed to be carried out more or less as a matter of routine in ordinary medical practice. I allude to physical examination, especially as applied to the chest and abdomen; and examination of the urine. Of course, in the clinical study of many inflammatory diseases and special affections now included under this category—for example, pneumonia or cardiac rheumatic manifestations—skilled physical examination is essential, while it is also of great help in the detection of complications and sequelæ, to which it must be noted attention may not be attracted by any prominent symptoms, and consequently they are very liable to be overlooked unless the practitioner is constantly on the alert to detect them by the systematic employment of this method of investigation. The necessity for examining the urine at frequent intervals would, I suppose, be generally recognised in scarlet fever, or perhaps even in diphtheria, for well-known reasons; but this measure is not always carried out so regularly or systematically as it might be in other complaints of an infectious nature. As a special test applied to urine I may remind you of Ehrlich's "diazo-reaction" for typhoid fever; but it is not trustworthy, even when present, as it may be met with in other affections.

The special methods of diagnosis applicable to infective and infectious diseases which modern scientific researches have brought so prominently before the medical profession have naturally attracted great attention and excited keen interest. It might be thought an occasion like this would afford a most suitable opportunity for discussing these methods at some length and endeavouring to estimate their practical advantages up to the present time and their future possibilities. I have preferred, however, to devote most of the time I could give to the clinical aspect of my subject to the more common modes of investigation, for reasons already sufficiently indicated. I have therefore left myself but little space to deal with these more scientific methods which I may remind you often require the help of an expert before their results can be safely relied on. I shall content myself with merely giving the following summary of these methods and their objects, mainly coming under the head of bacteriological diagnosis. They include: 1. Examination of the blood, both as regards its normal constituents, especially the number of leucocytes and the relative proportion of different kinds of cells, the blood plates, and the presence of abnormal corpuscles, and from a bacteriological point of view. The spirillum of relapsing fever and the malarial parasites are prominent examples of pathogenic organisms found in the blood and the latter have to be observed and studied during the changes they undergo, along with their effects upon the red corpuscles and the formation of pigment. 2. The further detection and microscopic demonstration of organisms, specific or non-specific or both, either obtained from the tissues of the body or contained in secretions, fæces and urine, various discharges, sputum being particularly noteworthy, and other morbid products of different kinds, fluid or solid, of which diphtheritic material is a conspicuous example. The organisms are not only identified by their morphological characters but also as a rule by their peculiar staining reactions. 3. Separation or isolation of the microbes, which are afterwards grown on suitable media in order to obtain cultures, the results being often highly characteristic, both to the naked eye and on microscopic examination. 4. Application of the "segregation" and "agglutination" tests in relation to the blood serum of the patient, which is most familiar to us in Widal's test for enteric fever. 5. The observation of the effects on the individual of the inoculation of certain products of the specific microbe of the disease from which he is supposed to be suffering, as in the so-called "reaction test" with tuberculin for tuberculosis. 6. The pathological results of inoculation of animals, either with the organisms themselves or with their toxins, which in some instances are essential for positive and accurate diagnosis, lesions of a definite and characteristic nature being thus produced, as is well exemplified by diphtheria.

A rather awkward question, but one of extreme practical importance to the profession, has been recently forced upon our notice which I cannot altogether pass by. In the *British Medical Journal* of March 7th an abstract is given of a disquieting statement issued by the Hospitals Committee of the Metropolitan Asylums Board as to the numbers of cases of mistaken diagnosis sent to the hospitals of the Board as notifiable during the three years 1899-1901. The subject is very ably, fairly, and sensibly dealt with in a leading article in the same journal of March 14th on the Diagnosis of Notifiable Diseases, which might be read with advantage by all who are directly interested in the question, or indeed even by the laity generally. They do not in the least realise the difficulties which confront the practitioner, with whom I have the deepest sympathy; and residents at the infectious hospitals cannot be too careful and particular not to hurt the feelings of their brethren in the profession more than can be possibly helped. Of course, any carelessness in diagnosis in relation to infectious diseases is inexcusable, but really young practitioners are not responsible for the fact that they are not so familiar with these complaints clinically as would be desirable and that many of them have to gain the requisite experience after they have entered upon their active professional duties. May I venture to suggest that while the modern medical student has immense advantages he labours under a decided disadvantage from this point of view, as compared with those of us who served an apprenticeship and became familiar with, at any rate, the more common infectious diseases, even before we started upon our regular studies at a medical school. As a matter of fact, he gets very little opportunity of gaining practical knowledge of most of these complaints during his period of studentship and has to fall back upon so-called "post-graduate instruction" if he desires further and more special training and experience. The bacteriological methods of diagnosis ought to help materially, should there be any real difficulty, in diminishing the number of mistaken cases in the future, especially if facilities are afforded to the practitioner of using them without delay, but they are not infallible, even where they can be applied.

TREATMENT AND PREVENTION.

To the laity of course the question which appeals most directly and pressingly with reference to infective and infectious diseases is, What position do we as a profession stand in to-day as regards their treatment and prevention? Have we made any progress at all; and, if so, to what extent and in what directions? Have we fulfilled the somewhat optimistic forecasts and promises which have been so frequently and loudly expressed in speech and written article during recent years.

In the first place, it must be admitted that we can boast of but very few "specific remedies" added to our list for the treatment of individual infective or infectious diseases in modern times, though we understand far better the modes of action of several of those which were used previously on empirical grounds, as you, Mr. President, have pointed out in your Address. Indeed, beyond the employment of salicin and salicylates or allied agents for rheumatism, I am not sure that we can claim any positive and assured discovery of this kind. Of course, there are not a few practitioners who have a routine treatment or a particular remedy for each one of these complaints, in which they implicitly believe, and which is infallible according to their own account. I must, however, much to my regret, while envying their "cocksuredness," decline to accept their statement as gospel. In my opinion, speaking generally, the more of an "open mind" and a "free hand" the practitioner cultivates in dealing with the majority of infectious diseases the better will it be for his patients.

Taking a comprehensive survey of the changes and modifications which have taken place in the treatment of infectious diseases one of the most conspicuous and beneficial is that the severe depleting and depressing measures which were formerly extensively if not almost universally carried out have been practically done away with and are now only resorted to in exceptional circumstances or for particular purposes, as in the free use of purgatives for certain individual complaints. Further, it is a profound matter of congratulation for ourselves and our patients that we now apply practical common sense and sound physiological, natural, and sanitary principles in dealing with these diseases as a matter of routine, in the way of physical and mental rest, abundance of fresh air and free ventilation, careful attention to hygienic conditions and surroundings, regulation of diet, personal cleanliness, general comfort, judicious disinfection, and other essential matters. In this connexion we can never forget or ignore the immense advances which have been made in the science and art of nursing and it would be impossible to over-estimate the service and help which the "trained nurse" can, and as a rule does, render in dealing with cases of infectious diseases in many trying and anxious circumstances. In my opinion a very large proportion of cases of acute specific fevers can be steered through their course on the lines just indicated without any active treatment whatever unless it be an occasional aperient; or if the exigencies of private practice demand some "medicine" we have excellent friends in the old-fashioned "saline mixture" and the "effervescent mixture," which at any rate are quite harmless and may be of definite use for certain purposes. The "open-air" treatment of phthisis is in reality in the main a mere development of similar principles.

Let it not be supposed, however, from what I have just said that I advocate a general policy of "masterly inactivity" in dealing with infectious diseases. Although we have but few novelties in the way of "specific remedies" to boast of, many most valuable medicinal agents in the treatment of these complaints have been introduced within comparatively recent times, whilst others previously known have also come to be employed with much advantage for certain definite purposes. There are many diseases and cases in which even from the outset the practitioner must recognise the necessity of administering in some way or other suitable medicinal remedies, or events not uncommonly supervene during their course which call for his interference, and he ought to know what to do in the particular circumstances and be prepared to act accordingly.

Without entering into any details I may point out that one of the chief classes of therapeutic agents which in modern times have come to the front in the treatment of infectious diseases are antiseptics, antiferments, germicides, or bactericides, as they are variously called, to which group not only many most valuable additions have been and are being made, but which are now employed in ways which our predecessors never dreamt of, though I think that some of the methods of using or administering certain antiseptics in relation to particular diseases which are advocated and practised at the present day are decidedly open to criticism. Another remarkable group are the antipyretics prepared in the chemical laboratory—phenazone, acetanilide, phenacetin, &c.—which when judiciously given may be of conspicuous service. Other agents deserving of mention are cardiac stimulants and tonics, strychnine being now recognised as a most valuable remedy from this point of view; and the newer hypnotics or other drugs intended to relieve particular symptoms, which may thus afford material assistance in guiding patients through serious illnesses of this nature. In this connexion I may also mention certain therapeutic methods and agents of comparatively modern introduction which are undoubtedly of conspicuous service in combating grave conditions immediately threatening life, such as subcutaneous or intravenous injection of ether or other diffusible stimulants, inhalation of oxygen, saline injections, and transfusion of blood or other suitable substitutes. For the various complications and sequelæ with which we have so often to deal in relation to infectious diseases and which not uncommonly sorely perplex us treatment must be conducted on general principles, guided by the knowledge, experience, and common sense of the practitioner.

There are certain special questions bearing upon the treatment of infectious diseases which I cannot pass over on an occasion like this without brief comment.

1. *Hydrotherapy and allied methods.*—No doubt you are aware that Dr. James Currie of Liverpool, to whom I have previously alluded, strongly advocated and carried out the treatment of fevers on a considerable scale by baths and douches. This treatment fell into practical desuetude, and, indeed, was generally looked upon with aversion and dread. In modern times, however, it has not only been revived but numerous other methods for applying cold to the body, either generally or locally, have been added, not only by means of water, but also of ice and cold air. These methods are now generally recognised and extensively adopted, probably more on the continent and in the United States of America than in this country, even in the treatment of many of the ordinary fevers, but especially in the more severe cases; and the local application of ice is strongly advocated in acute pneumonia and other inflammatory infective diseases. While of great value as antipyretics they have other important beneficial actions, which I need not now specify. Regarding hydrotherapy and allied measures in the treatment of infectious diseases, I would remark that every medical practitioner ought to be familiar with them and be able and ready to carry them out when required. The milder methods, such as sponging the skin or applying ice locally, are easily practised and are often of the greatest service. Personally, however, I do not advocate or employ the more severe methods as a routine system, as many do; and I feel sure that I have met with serious injurious consequences from such a practice. On the other hand, their essential value in saving life under grave conditions cannot be too strongly insisted upon.

2. *Use of alcohol.*—I now come to a question in relation to the treatment of infectious diseases and cases, both generally and individually, which demands the most thoughtful consideration—namely, that of the administration of alcohol. And I feel bound to take this opportunity of stating emphatically that when we, as members of the medical profession, approach from any point of view this alcohol question, we ought to do so under a deep sense of responsibility, but at the same time rationally and without undue bias one way or the other. At a large political meeting held not very long ago an eminent statesman was contrasting imperial with local questions and giving his own ideas about their relative importance, founded upon certain personal experiences. Amongst the local questions he mentioned "temperance reforms" and his allusion was received by the audience with "loud laughter." I venture to say that such is not the spirit in which this grave subject ought to be regarded at the present day by any community; and, at any rate, the medical profession as a body is bound to sympathise with and to encourage every effort made in this country to check the

terrible evils produced by intemperance, which confront us in such an overwhelming and appalling degree on all hands in our daily experience, and to do our utmost to promote sobriety amongst all classes, however hopeless the task may appear to be. And from this point of view we should always be most careful to avoid ordering stimulants to patients not accustomed to them unless they are, in our individual opinion, really necessary; while it is well always to give very definite instructions as to their administration. There is an influential body of the medical faculty in this and other countries, some of the members of which are of the highest professional and scientific standing, who absolutely and entirely object to the use of alcohol in any circumstances, and for these ladies and gentlemen I entertain the highest respect. As you are probably aware, an "International Medical Manifesto" against the use of alcoholic liquors was issued a short time ago, which roused resentment and a strong protest on the part of some members of our profession. To a certain extent I share their feelings, for, with all due respect to the opinions and statements expressed in that manifesto, I think those who signed it have gone too far and I regret that I cannot altogether agree with them. At any rate, so far as infectious diseases are concerned, I must express my own strong conviction that in a large number of cases the judicious administration of alcohol is of the greatest service, and I have seen a considerable number of grave, and sometimes almost hopeless, cases in which I have no hesitation in affirming that recovery was due to the use of alcoholic stimulants, not uncommonly in considerable quantities. Moreover, they are often of conspicuous value during convalescence. With ordinary prudence and care it is quite easy to avoid establishing a habit of taking stimulants in the case of patients who have been previously abstainers. While thus expressing my personal opinion in favour of the use of these agents in infectious diseases in suitable circumstances, I feel bound, on the other hand, to warn against their employment as a matter of routine, and I venture to urge that the most thoughtful and conscientious consideration should be given to every individual case before ordering them.

3. *External and local treatment.*—The treatment of external or local manifestations of particular infectious diseases, such as scarlet fever, small-pox, or diphtheria, affords legitimate ground for differences of opinion, and I must confess it is often puzzling to determine what is best to be done for such conditions when one reads the different methods of treatment advocated by different experienced authorities. I cannot refer to them further now and must content myself with saying that the measures to be adopted must be determined very much by the particular views of the practitioner, guided by judgment and discretion and modified by the special circumstances of each case. Antiseptics and disinfectants are employed with great advantage as local applications for various purposes. How far the light treatment, the x rays, or particular colour rays are going to help us, cannot be definitely determined at the present time. Just now the subject has come very prominently before the profession and the public, and the "red-light treatment of small-pox," which, however, is by no means a novelty, so strongly advocated by Professor Finsen in the *British Medical Journal* of June 6th, is attracting special attention, as well as some adverse criticism. What we may expect, also, from that wonderful newly discovered element—radium—it is impossible to foretell, but we must be on our guard against accepting statements as to its marvellous curative effects by irresponsible observers.

4. *Vaccines: Serum-therapy.*—What would, no doubt, be generally regarded as the most vitally interesting and important question of modern times, bearing upon the prevention and treatment of the entire group of infective diseases, is that of "serum therapy," using the term as an inclusive one which has come as the natural outcome of the microbic theory and is founded, on the whole, on reliable bacteriological researches and experiments, supported by the results of practical experience in living subjects. Time will only permit me on the present occasion to touch the fringe of this most attractive and fascinating subject, and I will merely ask you to bear with me while I remind you for a moment of what this method of treatment consists, and what are its objects and aims. Following Sims Woodhead's classification, the materials used are divided into—(1) vaccines, which are either cultivations containing pathogenetic micro-organisms with toxins or toxins only, or the tissues or fluids of an animal suffering from a particular infectious disease; and (2) antisera, which may be antitoxic only, neutralising the toxins, antibacterial or antimicrobic, acting directly upon the organisms, or in some instances having both actions. The comparatively recent investigations of Professor A. Macfadyen and Mr. Sidney Rowland with regard to the immunising power of the cell plasma of the typhoid bacillus, and the effects of repeated injections of this substance in rendering the blood serum of an animal both antitoxic and bactericidal are very remarkable and promise great results in the future. Up to the present time these therapeutic agents have been practically only employed by inoculation, being usually injected subcutaneously, but exceptionally more deeply, or into special structures. I note, however, that the antidiphtheritic serum has lately been recommended to be administered by enema, or even in pastils. Vaccines and antisera are employed either for the purpose of producing temporary or permanent immunity against an individual disease; or for the actual treatment of certain complaints or morbid conditions, either acting as definite "cures" or so modifying their course that their severity and dangers are materially lessened, their progress is hastened, and their mortality is greatly diminished. The large majority of these agents are specific, being only used in relation to a particular disease, but the antistreptococcic serum has been found of service in various affections and so-called "Coley's fluid" is also non-specific. The diseases thus treated with which we are most familiar are small-pox, as prevented or modified by vaccination and revaccination, hydrophobia, diphtheria, tetanus, enteric fever, scarlet fever, cholera, pneumonia, septicæmia, anthrax and glanders, plague, tuberculosis, leprosy, and cancerous or sarcomatous growths, assuming them to be infective. Now no one who has watched the course of events during recent years and who is unprejudiced can doubt for a moment or fail to acknowledge the immense value of this modern therapeutic method in relation to some of these complaints. There are others, however, in which thus far it has entirely failed in its objects, while in others still it is on its trial and those who are in a position to speak authoritatively differ widely in their views and conclusions as to its efficacy in some of the most important infectious diseases. Personally I confess that I am inclined to regard not a few of the positive statements made with a sceptical mind and I think we ought to be particularly careful in accepting and acting upon them at the present time, remembering the suspicious and not too friendly attitude of a large number of the influential laity towards the medical profession. At the same time it cannot be too strongly insisted upon that every member of the medical profession ought to avail himself or herself to the full of any method of treatment which bacteriology offers us, provided it has been scientifically and practically proved and demonstrated to deserve our confidence. It is not for us, in the present state of the law, to deal with the "conscientious objector," but I emphatically affirm that any individual practitioner who wilfully and with intent neglects or is in actual antagonism to vaccination and revaccination as a protection against small-pox may be justly regarded as guilty of a grave dereliction of duty and is responsible for serious mischief, the results of which are but too evident to any unprejudiced observer. The same remark certainly applies to the neglect of the vaccine or antitoxin treatment for diphtheria, hydrophobia, tetanus, and anthrax. The opening of the new buildings of the Jenner (now the Lister) Institute of Preventive Medicine encourages the hope that this country will not in the future be behind others in advancing this most important and promising branch of scientific and practical medicine.

It was my original intention to offer some observations on the prevention of infectious diseases from a general standpoint, but I have already trespassed too long upon your patience and must content myself with a few closing remarks. I venture to affirm that the predominant aim of the medical profession as a whole is essentially beneficent. In support of which statement I can confidently draw attention to the deep interest exhibited by its members in this question and to the efforts made by them, not only to limit and to prevent these complaints in a general way, but to eradicate and to exterminate those with which we may be thus able to cope effectually. This is no sham or pretence on our part, but an honest and straightforward policy and purpose to which not a few devote their lives and best efforts, which ought to be a rebuke to scoffers and slanderers, of whom there are many. I will go further and say that in dealing with infectious diseases medical practitioners and scientific workers often exhibit a brave, courageous, and self-sacrificing spirit which is worthy of our highest esteem and admiration. To go into the midst of a virulent epidemic and to fight against it day and night, often under the most trying and adverse conditions, which is no uncommon experience, is no trifling matter; and I could give many instances of individual courage and devotion, as well as of voluntary exposure to grave personal danger, sometimes ending fatally, which were truly heroic. Even the bacteriological researches in laboratories, which are intended to benefit humanity, are a source of danger—witness the cases of fatal infection with tuberculosis and the death of the young Austrian medical man who not long ago succumbed to plague while working in Berlin. But I feel bound to pay a special tribute of respect and admiration to those who have gone forth to pestilential climates and often under great hardships, or even by submitting themselves to dangerous personal experiments, have done such marvellous work in diminishing and controlling, or in some districts even exterminating, malarial and other diseases which were formerly the cause of destruction of human life on a vast scale, as well of such extensive and profound deterioration of health.

What will be the future progress of events in relation to the prevention of infectious diseases it is impossible to foretell or to estimate, though the forecast is in certain directions decidedly hopeful. I venture, however, to submit that we as a profession should be extremely cautious as to what we say and should avoid a too "cheery optimism" in the way of making promises and predictions which, recognising the very nature of things, the conditions under which humanity exists, and the difficulties which so-called civilisation brings with it, experience and common sense must tell us are, to say the least, extremely rash. On the other hand, let us never relax in our efforts to promote the good cause and to encourage, to develop, and to enforce every measure, scientific or practical, which has for its object the mitigation or prevention of those widely spread and often terrible infectious diseases which now add so enormously to the death-rate and which, even in cases of recovery, leave such serious after consequences amongst large numbers of the community. And this we must do in spite of opposition, however powerful, persistent calumny, vicious attacks on our motives, or even being called foul names. There are numerous "antis" about just now, but for downright insolence and impudence the anti-vivisectionists "hold the field." They have the most astounding faculty and capacity for fabricating statements for which there is absolutely no foundation, for distorting facts, and for cooking statistics, and they stick at nothing. Let us treat them and their hysterical outbursts with the contempt which they deserve. Our duty is plain enough. Not only must we work on steadily as a profession in the direction I have indicated but we must earnestly strive to gain the confidence and coöperation of influential individuals and communities and to guide them on intelligent and rational lines.

I have been asked to speak in this address in support of the appointment of a Minister of Public Health. I note that you, Mr. President, are not in favour of such an appointment, but personally I really do not feel competent to speak one way or the other. You have sketched a scheme with regard to the practical and official working of the Public Health Department which appears to have sound principles underlying it, and at any rate some change is obviously necessary. In the meantime, however, we must do what we can to educate and to influence borough and county councils and other public bodies which are concerned with sanitary matters, as well as members of both Houses of Parliament, and to stimulate them to do their duty. Thus will we, as members of a self-sacrificing and noble calling, while endeavouring in our individual capacity to perform conscientiously and intelligently the duties which devolve upon us in relation to actual cases of infectious diseases which come before us in our several spheres of practice, be further, collectively and with concerted action, doing what lies in our power to promote the health and wellbeing of our fellow creatures on a large and comprehensive scale and to avert or to mitigate the effects of those grave maladies which are now such a scourge to humanity.

UNIVERSITY OF ABERDEEN.—After the graduation ceremony on July 24th a bronze tablet, to the memory of the late H. Alleyne Nicholson, M.D., D.Sc., F.R.S., professor of natural history in Aberdeen University, was handed over to the custody of the University authorities by Professor Arthur Thomson, on behalf of the subscribers, who numbered about 60 of the friends, colleagues, and students of the late professor.

Address in Surgery:

OBSERVATIONS ON THE EVOLUTION OF ABDOMINAL SURGERY FROM PERSONAL REMINISCENCES EXTENDING OVER A THIRD OF A CENTURY AND THE PERFORMANCE OF 2000 OPERATIONS.

Delivered at the Annual Meeting of the British Medical Association at Swansea on July 30th, 1903,

BY A. W. MAYO ROBSON, F.R.C.S. ENG.,
HUNTERIAN PROFESSOR OF SURGERY AND PATHOLOGY, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MR. PRESIDENT AND GENTLEMEN,—I know well that to be invited to deliver the Address in Surgery before the British Medical Association is to receive one of the greatest compliments that the profession can confer, for the council represents a unique constituency, both in numbers and intellect. But with the sense of honour comes also the profound sense of responsibility, hence it was with mingled feelings that I ventured to accept your kind invitation. A third of a century has elapsed since I entered on my medical work and when I look back over that long period and see the changes that have occurred I am inclined to wonder whether I really belong to the same profession as in 1870. It was then quite usual for the surgeon to be physician, obstetrician, and general practitioner at the same time, and only in a very few of the large centres was surgery made a specialty of; yet such have been the increase of knowledge and the improvement in technique in the art and science of surgery in its various branches that the extinction of the general surgeon at one time appeared possible, which would have been a misfortune; for although thoroughly believing in specialisation, I consider that the specialty should come later; in other words, I would have the surgeon first to know something of everything in his profession and later everything of something, since we must all acknowledge that the accumulation of knowledge renders it impossible that one should know all of everything. Along with many of my audience I have had the advantage of witnessing the revolution not only in surgery and medicine but in every branch of medical work, which occurred during the last 30 years of the nineteenth century, such changes as will stamp that period for ever in the annals of our art. The surgeon who entered on his work in the "eighties" or later can scarcely picture to himself the state of affairs that existed in the early "seventies," when it was possible to see, as I myself have done, a hospital ravaged with hospital gangrene and phagedæna; when erysipelas, pyæmia, and septicæmia were never long absent from any surgical wards; when any operation, however simple, might assume complications of the most serious import; when secondary hæmorrhage was of frequent occurrence; when compound fractures often took months to heal and frequently ended in loss of life or limb; when erysipelas was put down to change of weather, tetanus to nerve irritation, tubercle to a diathesis, and rapid deaths from septicæmia to shock. Those of my hearers who have passed through this period of the history of medicine have witnessed the birth and growth of the science of bacteriology and the nativity, infancy, adolescence, and sturdy manhood of its brilliant offspring, antiseptic and aseptic surgery, the distinguished author of which, I am glad to say, is still with us and has himself witnessed the truth of his theories and the success of his system in the saving of more lives each year than Napoleon destroyed in all his wars. It is clearly impossible in a short time even to record briefly all the advances made in surgery, but in my work as a general surgeon I have also had the privilege of taking part in the development and progress of a special branch—abdominal surgery—than which nothing could better exemplify the great changes that have occurred during the 33 years which I am considering, for in the early "seventies" abdominal diseases were practically always treated expectantly, and if we look at the reports of 1870 we shall see that, as judged by results, it was perhaps just as well that surgery had then no business inside the abdomen

As knowledge increased [illegible] tific, many of the diseases [illegible] from the beginning or at a [illegible] so that to day abdominal surgery is a subject of the first importance Not only has treatment advanced by leaps and bounds but our knowledge of abdominal diseases and their successful diagnosis has enormously increased, partly by pathological advancement generally and by experimental research but also by philosophical observations on the operating table and the study of disease in the living subject, in other words through biopsy instead of necropsy The time was when the physician thought he had done all that was necessary when he had arrived at a probable diagnosis and he philosophically waited until his hypotheses were proved or disproved in the deadhouse; treatment was left to the junior as being quite a secondary matter and I am bound to say that in abdominal diseases that were not merely functional and that could not be treated in the out-patient department the estimate placed on treatment was often correct Then ovarian disease was generally known as a form of dropsy and was either treated by tapping, when the pressure became so severe as to demand some relief, or seeing that tapping was at times fatal or only gave a temporary respite, the greater number of cases went untreated The surgery of the intestines, except for strangulated hernia, was not thought of and uterine, renal, gall bladder, stomach, liver, and pancreatic surgery was hardly dreamt of as possible In 1870 an attempt was being made in some of the general hospitals to emulate the example set by certain pioneers, such as Clay of Manchester, Spencer Wells of London, and Keith of Edinburgh, but with what result? It is interesting to note the following facts In St Bartholomew's Hospital in 1870 there were three ovariotomies, all fatal, and 20 cases of herniotomy in which the sac was opened, with nine deaths In Guy's Hospital there were five ovariotomies, with three deaths, and 19 herniotomies with opening of the sac, with 11 deaths In St. Thomas's Hospital there was one ovariotomy, in which death occurred, and there were 14 herniotomies, with eight deaths In St. George's Hospital there were two ovariotomies, both ending fatally, one colotomy, which ended fatally, and 20 herniotomies, with eight deaths In the same reports there was always found a special record of the number of cases which are now so rarely seen For instance, in one of the reports for 1870 there were recorded 53 cases of erysipelas, 20 of phagedæna, 93 of diffuse cellulitis, and four cases of secondary hæmorrhage after operation, which at the present time would be sufficient to condemn any surgical clinic, yet this record was no exception, as all the hospitals furnished similar reports It would be invidious to compare the work of the various hospitals, as shown by the reports of 1902 published this year, but in one of the chief hospitals I noticed a record of 40 ovariotomies with 39 recoveries, of 18 hysterectomies with 17 recoveries, of 241 herniotomies, including strangulated hernia as well as radical cure of hernia, with 233 recoveries, of 16 gall bladder operations with 15 recoveries—a record of which no hospital in the world need feel ashamed. The rise and progress of abdominal surgery have centred more around ovariotomy than any other branch of work, hence it may be of interest to review for a moment the evolution of that operation, for it has been the battlefield of abdominal work

[Mr Mayo Robson then detailed the well known controversies in which Keith in Edinburgh, Lawson Tait in Birmingham, and Spencer Wells in London took so prominent a part and showed that under perfect technique, with a judicious combination of asepsis and antisepsis, ovariotomy has become a truly beneficent procedure He continued —]

PERITONITIS.

What gives special interest to surgical affections of the abdomen is the fact that the viscera are invested in whole or in part by the large serous peritoneal sac and that infection, however communicated, is apt to assume serious proportions, involving not only the whole abdominal cavity but the system at large. In the "seventies," and even much later, the diagnosis of peritonitis used to be made with great satisfaction, as if it were final and sufficient, but I should like to ask who at the present time with any claim to scientific knowledge would be content with a mere name that gives no idea of the disease to be treated or of the cause of the illness? It may not be convenient, as has been suggested by M Aimé Guinard, that the term "peritonitis" should be altogether given up, for even at the present time it is a convenient cloak for ignorance; moreover, the public have some idea of what is meant by the term, but do not let us deceive ourselves—peritonitis so-called is an infection pure and simple of a large serous sac and the symptoms will vary with each form of organism, whether streptococcus, pneumococcus, gonococcus, or bacterium coli, as well as with the amount of toxin absorbed Accepting this view we cannot be astonished to find an acute infection associated with a lowered temperature and a rapid small pulse This paradox is so characteristic that for years one has been teaching pupils to look on a subnormal or even a normal temperature combined with a rapid pulse as serious in surgical diseases of the abdomen and as indicating the absorption of toxins If the disease were a *true inflammation we should look for the cardinal symptom*, fever, which is absent in these toxæmic cases The discovery of the frequency of perforative appendicitis, of perforating gastric ulcer, and of other peritoneal catastrophes is gradually abolishing the term "acute peritonitis" for the more rational one of "acute peritoneal infection," for the treatment of which surgery alone is of any use, and even for it to be of service, operation must not be long delayed. These more rational views of pathology and treatment have originated and developed within recent years, and I can recall case after case, during my student days, in which peritoneal catastrophes ended fatally, where now we should by timely interference give a very fair chance of life Could anything show this more definitely than the results of treatment of perforated gastric ulcers, which if operated on at once would have hardly any mortality, if within 12 hours of rupture a mortality of 16 6 per cent., if within 24 hours, 63 6 per cent., *if within 36 hours, 87 5 per cent, and if delayed* for 48 hours will only rarely succeed, or, to give another example, than the results of surgical treatment of the intestine in typhoid fever, alas, too seldom resorted to To give an example kindly obtained for me by Dr P J Cammidge out of a total number of 900 cases of typhoid fever occurring in St. Bartholomew's Hospital in the years 1895 to 1901 there were 102 deaths Among the 900 cases were 38 of perforation, of which 34 died unoperated on, whereas of the four operated on three recovered Could operation have been done in the remaining cases it would seem possible that 25 more lives might have been saved In Professor Osler's clinic, out of 11 cases five were saved by operation Intimately related to intestinal perforation is perforation of the gall bladder in typhoid fever, of which 34 cases have been collected by Dr Erdmann of New York, of these 27 were not operated on and all died, but of the seven which were operated on four recovered As spontaneous recovery from perforation is extremely rare it is of the utmost importance that not only should we have an early recognition of the perforation but also an immediate operation Up to 1883 every case of intraperitoneal rupture of the bladder had died but in that year the late Sir William Mac Cormac operated and saved two lives, *since that time there* have been 54 operations recorded, according to Dr Jones,[1] out of which 28 patients recovered Could these cases have been seen earlier, the saving of life would have been much greater, for in the cases that recovered there had only been an average interval of 25½ hours between the accident and the operation, whereas in the cases that died the average interval had been 32 hours, and of the 26 deaths 17 were due to peritoneal infection Just as in gastric ulcer, the danger is increased with every hour of delay between the accident and operation hence in case of doubt exploration (which can be done through a very small incision, just sufficient to admit the finger) is safer than waiting, and experience shows that the aiding of the diagnosis by the injection of air or fluid into the bladder adds to the risk of general peritonitis by spreading infection over the whole abdomen In injuries of the abdomen by penetrating wound, whether stab or bullet wounds, the resulting troubles are from infection, either directly through the instrument causing the injury or by perforation of one of the hollow viscera and escape into the peritoneal cavity of the septic contents How much more rational it is to consider this as an infection and immediately to set about the removal of the poison and the repair of the damage, *if it can be done under conditions* favourable to success, than to treat it as peritonitis and to rely on so-called antiphlogistic remedies. Few greater triumphs of scientific surgery can be shown than some of the remarkable cases of visceral injury where stomach, bowel, liver, gall-bladder, and other viscera have been perforated, either by bullet or some other sharp instrument, and in which operation has been successfully performed before infection has had time to occur.

---

[1] Annals of Surgery, June, 1903.

APPENDICITIS.

Appendicitis of the acute, perforating, or gangrenous type comes on so suddenly as often to constitute a peritoneal catastrophe and in a proportion of cases terminates fatally in so rapid a manner that the diagnosis is made only with great difficulty or not at all. Such cases, when I was a student, went undiagnosed and death was ascribed to peritonitis simply, a sufficient diagnosis in those days ; and it was not till 1886 that we heard anything of this lethal malady which though it has slain its tens of thousands is now, thanks mainly to the labours of Fitz of Boston, who laid the foundation of our modern knowledge of the subject, brought under subjection in a very large percentage of cases. The disease is said to be on the increase, but I am not at all clear as to the truth of this, as there have been buried in our literary records for generations, fairly accurate accounts of dangerous inflammations occurring in the right iliac fossa and described vaguely as typhlitis, perityphlitis, paratyphlitis, &c., and both Copland and Burne in 1837 gave accurate descriptions of perforative appendicitis and its consequences. It is certainly more frequently diagnosed and more scientifically treated than it was, and it is a comfort to know that the operation, when undertaken early, is attended with an encouraging amount of success, and, as shown by Sir Frederick Treves, when treated in the quiescent period it is almost devoid of risk. Arguing from my own experience of operations in the quiescent period in a large number of cases without a death, and from that of many other surgeons at home and abroad, I have no hesitation in saying that had I an attack of appendicitis I should prefer accepting the infinitesimal risk of removal of the organ directly the attack was over to the decided risk of waiting for the next seizure, which might be one of the acute type. Even in the acute type of the disease operation, if undertaken early, as is the practice advocated by some surgeons, is very successful, and though we cannot expect it to be devoid of danger like the operation between the attacks, yet it is certainly very much safer than waiting for the gangrenous process to extend, for an abscess to burrow or to burst in various directions, for infection to invade the blood, or for the onset of complications of infinite variety and danger.

[Mr. Mayo Robson then discussed at length the various methods of hysterectomy for myoma and some of the operations on and about the liver for the evacuation of hydatids and abscesses, showing how many patients by the advance of modern surgery could be relieved of what quite recently were mortal conditions. He went on :—]

THE SURGERY OF THE BILE PASSAGES.

This is one of the most interesting episodes in abdominal work, for although the first cholecystotomy was performed so far back as 1867 by Bobbs of Indianapolis it is only within recent years that surgery has come to be recognised as the treatment for gall-stones. I performed my first cholecystotomy in 1885, since which time I have operated nearly 600 times on the gall-bladder and bile-ducts. When in 1889 I read a paper before the Clinical Society of London one of the leading London surgeons said to me, "Wherever did you conjure your gall-bladder cases from: we never see them here?" I referred him to the medical wards and to the post-mortem room of any of the hospitals, with the result that within a short time he found many cases requiring relief. At first cholecystotomy only was practised, with the result that the ducts were often left obstructed and fistula necessarily followed. It was thought to be a bold venture when Lawson Tait crushed a stone in the common duct, a procedure which I followed with success on a number of occasions, until Courvoisier in 1891 showed it to be better to incise directly the common duct. Common-duct operations, as performed by the upward incision and rotation of the liver, which I introduced some time ago, are now as easy as an ordinary cholecystotomy used to be, for the improved method enables the whole of the biliary ducts to be brought near to the surface and to be deliberately dealt with. Nothing could demonstrate this better than the results in my own practice in an experience of over 100 choledochotomies, for whereas in my first series before 1900 the rate of mortality was 23·8 per cent. in my last series it is only 1·5 per cent., and I have had a continuous series of 50 cases without death ; moreover, it must be borne in mind that nearly ever one of these cases is not merely a successful operation but life saved, for common duct cholelithiasis associated wit infective or suppurative cholangitis and deep jaundice is mortal malady.

It is interesting to recall the views that were held o cholelithiasis in the "seventies," when the pathology of th disease was ill understood and the dangers were not at al realised. The first real step in the study of the pathogenesi of gall-stones was made in 1886, when Bernheim showe the relation of typhoid fever to the development of cholecystitis and the next was in 1886 when Galippe demonstrated the bacterial origin of gall-stones. Now we ma say that by whatever cause, whether through the blood o from the bowel, bacteria enter the bile channels, there i no longer a question that in bacterial infection of lo virulence we have explained the etiology of cholelithiasis Fortunately, gall-stones are usually easily diagnosed, th symptoms are classic and in the early stages before complications have supervened cholelithiasis is curable b surgical methods in 99 per cent. of cases, as I mysel have demonstrated in a large series of operations; but i we wait for complications to supervene and for the onse of jaundice and various infections, or until cancer ha invaded the liver and gall-bladder, which it does ultimatel in 50 per cent. of cases in which jaundice is present, then there will be a very different tale to tell. Even yet we do not get these cases always in time and unti the fact is grasped that medicine can, as a rule, only relieve and cannot cure cholelithiasis we shall be continually having to operate in the presence of serious complications, endangering life when operation is from five to ten times more dangerous than if it had been undertaken at an earlier stage. But you say, What about the cures at Carlsbad, Harrogate, and other spas? Well, the waters undoubtedly do relieve the catarrh so often associated with gall-stones ; and for the rich who can afford to make periodical pilgrimages thither the troubles may for a time be tided over, until, in a considerable proportion of cases, the descent of the stone into the common duct or the supervention of cancer compels more active intervention ; and fortunate it is for them if it be not too late. For the poor, to whom time wasted means starvation for those dependent on their wages, fortunately surgery holds out good hope of speedy cure.

The great reduction in mortality in surgery of the gall-bladder is due to an earlier diagnosis, a closer study of the pathogeny of the disease, and infinitely greater care in operative technique. Much work remains to be done in this region, for it is a difficult and complex field, less accessible than many other regions of the abdomen and often complicated by pancreatic troubles coexisting ; but progress is steadily being made and every year shows real advance tending towards perfection.

THE SURGERY OF THE STOMACH.

The way to success in gastric operations has been paved with many failures and only recently has the surgeon been able to show what can be done in this branch of work. For instance, when gastrotomy was first performed by Sedillot and by those who followed him it was nearly always fatal, the chief reason being that the patients were never handed over to the surgeon until nearly moribund; of such were my first eight cases, of which six died. Even up to 1890 the mortality was so great that the operation was seldom advised, yet it can be done in so short a time and with so little disturbance that out of my last 24 cases all have recovered except one, leading to considerable prolongation of life in the malignant, and to the saving of life in the simple, cases. In the "seventies" anyone with carcinoma of the stomach was at once given up as hopeless, and only in 1879 was the first attempt made by Péan to remove a malignant pylorus, the first successful operation being performed by Billroth in 1881, when the operation was looked on with as much disfavour as was the first attempted complete gastrectomy a few years ago by Connor in America, yet Schlatter's patient a little later lived 14 months after complete gastrectomy and I can point to a man in good health on whom I performed almost complete excision of the stomach two and a half years ago and to others now well who have undergone partial gastrectomy. Professor Kocher's statistics in this branch of work are of great importance as showing that the radical operation may in some cases, if done thoroughly, prove curative, and my friend Mr. Jessop has a patient now living from whom he removed the pylorus for cancer several years ago. I am firmly convinced that many deaths are ascribed to cancer when the disease is inflammatory and perfectly curable by the operation of gastro-enterostomy without removal of the tumour. This I can prove from my own experience in patients now living and well several years after an operation which at the time was thought would be only of a palliative nature. Nor was the palliative operation of gastro-enterostomy much better thought of at first, for although Wolfler successfully performed the operation in 1881, his patient surviving for four months, yet the mortality of 65·71 per cent. in the years between 1881 and 1885, of 47 per cent. in the period from 1886 to 1890, and of 33·91 per cent from 1891 to 1896, though showing a steadily decreasing death-rate, yet presented so doleful a picture as to deter medical men from recommending their patients to submit to operation. Even so recently as 1900, when I gave the Hunterian Lectures on the Surgery of the Stomach, of the 1878 cases of gastro-enterostomy that I was able to collect from all sources the mortality was 36 4 per cent. But since that time the surgery of the stomach has made such rapid progress that of 103 posterior gastro-enterostomies which I myself performed up to December, 1902, *for various diseases, including* cancer, there was a mortality of only 3·8 per cent.

Until quite recently gastric ulcer, except for one or two of its complications, has been considered to be a subject for medical treatment from first to last. The profession is, however, becoming awakened to the fact that it is not the trifling ailment it was once considered to be and that it should from the first be taken seriously, for it is in the early stages that medical treatment can be employed to the best advantage and in the later stages that general treatment is so often followed by relapse or by serious complications. Leube, one of the greatest medical authorities on the subject, says that one-half or three-fourths of all cases will be cured by four or five weeks of treatment, but if not better in that time they will never be cured by medical treatment alone; and Einhorn says it is fatal directly and indirectly in 50 per cent. of cases when reliance is placed exclusively on medical treatment. It can be demonstrated that in the patients incurable by medical means surgery holds out a good hope of relief or cure in 95 per cent. of cases, as I have shown in an address recently given before the London Polyclinic. The subject is too large to enter minutely into, but from what I have stated now and in other places have given in detail it will be seen that in this, as in other diseases of the stomach, modern surgery has very great triumphs to record.

THE SURGERY OF THE PANCREAS

The pancreas had practically received no attention from a surgical point of view up to Senn's classical experimental work in 1886 and even for some time after that the only interest centred around cysts, so that Greig Smith, writing in 1896, said, "The experience of the last ten years has added little to the work of Senn of Chicago." But what do we see to-day? That the subject is of such magnitude as to need a volume of considerable size to deal adequately with its pathology and surgical treatment. I myself have operated on nearly 100 cases of disease of the pancreas of various kinds. Acute pancreatitis is one of the most serious and fatal of diseases, often coming on with startling suddenness, and it is astonishing how it can have escaped the notice of pathologists until so recently. Fortunately, surgery has been able to interfere beneficially in some of these cases, especially those ending in suppuration, and as our knowledge of the subject increases we shall be able to do more both in the way of prevention and cure. Chronic pancreatitis, though recognised from a pathological point of view, was practically unrecognised as a subject for surgical treatment until I drew attention in June, 1900, to the facts derived from an experience extending over some years that many cases described as cancer of the head of the pancreas and leading to chronic jaundice, which ended fatally, were really cases of chronic pancreatitis that could be cured by draining the pancreatic duct indirectly through the bile passages; this has led to great success in the treatment of a class of cases previously treated as hopeless. As yet the treatment of cancer of the pancreas is very unsatisfactory, and whether we shall ever be able to do much for malignant disease in this situation the future alone will prove; for although a portion of the pancreas has been removed with success in one or two cases it is an operation not likely to be frequently repeated and the cure must be sought in that extended knowledge of cancer generally which we are all striving for. The treatment of cysts is most successful and it is now well established that by drainage we may reasonably expect to cure or materially to relieve the patient in a very large proportion (probably from 93 to 95 per cent.) of cases. Calculus of the pancreas is a disease about which very little has been heard and still less done but of which more will be recorded in the future. A case of removal of calculus was described by my friend Mr. A. Pearce Gould in 1895 in which the patient survived the operation for 12 days; there was one last year in which my friend Mr. B. G. A. Moynihan successfully removed a calculus through the duodenum; and in February of this year I operated and removed three calculi from the pancreas, one from the gland by the side of the common duct, one from the main duct which it was obstructing (that being reached through the duodenum), and one of about the size of a cobnut from the main pancreatic duct on the left of the spine, this being the first case in which the main pancreatic duct has been deliberately opened through the substance of the pancreas and stitched up again after removing the obstruction. The patient recovered. The more complete exposure of the pancreas which can now be obtained by the method I have suggested for exposure of the common bile-duct will give an impetus to pancreatic surgery and will render the operative technique both easier, safer, and more certain.

THE SURGERY OF THE INTESTINES.

The interrupted suture at first employed occupied so much time in application that many modifications were soon introduced and in 1885 Mr. Stanmore Bishop showed that there were no fewer than 33 distinct methods of enterorrhaphy and since probably as many more have been introduced. In 1887 Senn's plates were employed to facilitate the process of intestinal anastomosis and I remember what a great impetus was given to the surgery of the intestinal canal by Dr. Senn's very able paper and demonstration at the International Medical Congress in Copenhagen. In 1892, being dissatisfied with the methods then in vogue, I invented a decalcified bone bobbin shaped like a cotton reel which would form a temporary splint around which to apply two continuous sutures—one to the serous and another to the mucous margin of the new openings—which method has proved most useful and I feel sure has administered to whatever success I have had in this line of work. The continuous sutures applied over the bone bobbin considerably shortened the time of operation and left the union so safe and secure that in a large number of operations since performed on the hollow viscera I have continued to employ it with great satisfaction. As illustrating its utility the series of cases of posterior gastro-enterostomy performed by me up to the end of last year were all done by this method and in the four cases that died the union, as proved by necropsy, was perfect, moreover, I know that the anastomotic opening has not the tendency to contract that occurs after some of the other methods and as the bobbin dissolves within two or three days no foreign body remains to cause further trouble. In end-to-end junction of the divided bowel in enterectomy the decalcified bobbin has given me equal satisfaction and though from the nature of the cases the actual operative mortality has been greater yet in no case has the result been due to imperfect coaptation. In 1892 Dr. Murphy of Chicago invented his well-known metal button which, since it is employed without previous application of sutures, can be used very quickly and by its distinguished inventor as well as in the hands of other surgeons it has been adopted with great success. The chief disadvantages it presents are, first, that it is necessarily associated with sloughing of the compressed and coapted ends of the bowel; next, that a foreign body is left in the canal which sometimes produces ulceration and other troubles; and thirdly, that the opening has been found in some cases to contract and this necessitates a further operation. Along with many other surgeons I gave it a thorough trial, but soon reverted to the method of suture round a bobbin, and the general trend of opinion is now to rely on simple suturing with or without any mechanical support. Cases of tumour of the bowel when I was a student were given up as hopeless, though a little later colotomy was performed as a means of giving relief, which was of course merely temporary. At the present time such growths are removed before the supervention of obstruction and with very good results both immediate and remote; for instance, my colleague, Mr. H. Littlewood, recently reported a series of 14 colectomies with 10 recoveries, and out of 38 enterectomies which I have performed 26 have recovered, but out of my last 16 in private 15 recovered, showing the progress that has been made in the operative technique.

It is astonishing what large portions of the intestinal tract may be taken away with safety; for instance, Mr. Barker removed five and a half feet of damaged bowel with success in a case of strangulated gangrenous hernia, and I have on several occasions removed part of the ileum, the cæcum, the ascending and part of the transverse colon, with recovery of the patient. In the first number of the *International Archives of Surgery* is the description of a case in which Professor Roswell Park removed eight feet nine inches of gangrenous small intestine, the patient being well a year later; and in the same paper reference is made to 17 other cases in which over six feet of bowel had been excised with recovery in 14; in one of these cases no less than 11 feet were removed. In 1884 colotomy had the enormous mortality of 31·6 per cent. for the lumbar and 53·1 per cent. for the inguinal operation, as shown by Dr. W. R. Batt, who collected the records of 351 cases; in 1889, under improved technique, the inguinal operation was reintroduced by Mr. H. W. Allingham, with the result that the mortality was diminished within a short time to under 10 per cent., even including cases of acute obstruction, though excluding the acute cases the mortality is under 5 per cent. Looking to the future it seems highly probable that colotomy will be largely replaced by the removal of the disease, for it has been clearly proved that there is no part of the lower bowel which cannot be safely excised if taken sufficiently early, and I can point to a number of patients living in comfort from whom I removed rectal cancer years ago, in one the patient being in good health ten years after. Mr. W. Watson Cheyne estimates the mortality of excision of the rectum at from 5 to 10 per cent. and refers to Kocher's statistics in which 28 per cent. of cases remained well from three to 16 years after proctectomy.

For the rational treatment of intestinal obstruction we owe much, first, to the anatomical researches of Sir Frederick Treves, and secondly to his admirable work on the pathology and surgery of the subject. Although there are vague accounts of a successful operation for volvulus in 1768, the surgery of the last century until within 20 years of its close had no history bearing on the subject of intestinal obstruction, and I can remember when it was considered no discredit to stand by with folded hands while a patient was dying from internal strangulation. Many of those present will remember it being proposed seriously less than 20 years ago, in one of the medical societies, by a very eminent surgeon, that operation could be frequently avoided by calling in the nearest policeman and suspending the patient head downwards with the knees bent over the constable's shoulders, who was then directed to jump up and down a number of times so as to displace the hernia or to undo a twist; this will show the state of intestinal surgery in the "eighties." At the present day the differential diagnosis has been so well worked out and the technique of operative work so much improved that no physician or surgeon long delays resorting to operation if relief be not soon obtained and the results as shown by numerous reports amply justify the change. Did time permit I could give numerous examples of the cure of acute intestinal obstruction by the division of bands, the untwisting of volvulus, the unfolding of intussusception, the reduction of internal hernia, and the removal of concretions, in all of which, but for the recent advances of surgery, the patients must inevitably have perished and all of whom would undoubtedly have died had they occurred in the "seventies."

[Mr. Mayo Robson then discussed the value of operative procedure in abdominal tuberculosis and strangulated hernia, going on to discuss the advances made in surgery with regard to the treatment of—]

THE ANOMALIES OF PREGNANCY.

Eminently satisfactory results are now obtained in that ancient operation, Cæsarean section, where at one *séance* two, or sometimes three, lives are saved and which in the hands of Murdoch Cameron, Leopold, Sanger, and other operators has been done in recent years with an extremely small mortality, whereas in the large maternity hospitals in Paris during half a century before the aseptic era, although the operation had been done 60 times, in no instance had the mother's life been saved, and in England the operation for similar reasons was condemned absolutely. I know of no operation that has given greater satisfaction than this one, for the patients are eternally grateful, which is truly the highest reward of the surgeon. Dr. J. M. Amand Routh has been kind enough to furnish me with statistics showing the improvement in the operation of hysterectomy performed at or near the full term of pregnancy for contracted pelvis, cancer of the cervix, or obstructing fibroids. From 1876 to 1881, out of 99 cases there was a mortality of 60·6 per cent.; from 1887 to 1901 out of 311 cases the mortality was reduced to 16·7 per cent.; and while the extraperitoneal treatment of the stump had a mortality of 31·3 and panhysterectomy one of 21, the retroperitoneal method of treating the stump only gave a rate of 16·6 per cent. Ovariotomy during pregnancy has been remarkably successful, the mortality for a large series of collected cases being only 5·19 per cent., and the recovery after operation being as satisfactory as in ordinary circumstances. Ectopic gestation until recently constituted a dark chapter in medicine; it was altogether misunderstood as to cause, pathology, symptoms, and treatment, and hundreds of lives were lost annually which are now saved by timely surgical intervention. To the genius of Lawson Tait, who utilised the post-mortem experience of Bernutz and Goupil published in 1886, and the clinical observations of J. S. Parry we owe the successful treatment of this otherwise fatal disease. Lawson Tait's work on this subject alone should be sufficient to establish a claim for him to be placed among the great benefactors of science and of humanity. As showing the success of his treatment from the first, up to 1887 he had operated 35 times for ruptured tubal pregnancy with only two deaths and in my valedictory address at the termination of office as President of the British Gynæcological Society in 1898 I was able to report, following on the same lines, 23 operations for ectopic gestation with one death. The subject has received much attention at the hands of Professor J. W. Taylor of Birmingham, Mr. J. Bland-Sutton, and others, but only recently has it been distinctly proved by four undoubted cases, one of which came under my care, that ovarian gestation is a possibility. The subject is replete with interest and it may be said without any fear of contradiction that this operation alone has saved many thousands of lives which, when I was a student, would have been sacrificed and probably certified as having died from internal hæmorrhage.

THE SURGERY OF THE KIDNEYS AND URETERS.

Although the dawn of renal surgery dates from August 2nd, 1869, when Simon of Heidelberg deliberately performed nephrectomy, the first successful operation in England was done by a member of your Council, my respected colleague, Mr. T. R. Jessop, an operation which I had the privilege of witnessing. Sir Thomas Smith advocated nephrotomy in 1869 before Simon's operation, but it was not until 1870 that Mr. Bryant first performed the operation and until 1880 that Mr. Henry Morris applied it to the removal of a calculus. As showing the advances that followed, the last-named surgeon was, in 1898 able to report 34 nephrolithotomies with 33 recoveries, showing the invalidity of the objection which had before 1880 been urged against the proposal to operate on a kidney not already converted into a mere abscess sac, and proving that the conservation of the kidney by removal of the disease is infinitely better than the sacrifice of the organ which was at one time advocated. The next advance was due to Hahn who in 1881 described two cases in which he had performed the operation of nephropexy for the fixation of moveable kidney, a procedure which in proper cases confers great benefit on a class of patients who previously had to bear their troubles until the moveable organs were often converted into large fluid cysts owing to intermittent kinking of the ureters. By utilising the partly-stripped capsule and the posterior incision of Edebohl I have been gratified with the results, both immediate and remote, of the operation, which with little or no risk in properly selected cases has been the means of restoring many invalids to a state of health and comfort. Partial excision of the kidney as a conservative operation is the next advance to chronicle. Czerny in 1887 excised part of the organ for tumour, preserving the remainder of the kidney which seemed to be free from disease; this was followed by a number of conservative operations by Tuffier, Kimnell, Bloch, Morris, myself, and others, many of which have been completely successful; for instance, I know of a lady in perfect health from whom I removed a large wedge from the centre of the right kidney for localised tuberculous disease some years ago, of another from whom I removed the upper half of the right kidney for growth which apparently started in the suprarenal capsule and who was well three years later; and of other cases in which formerly one would have considered it absolutely essential to remove the whole organ. The differentiation of diseases of the kidney—a great advance in diagnosis—has been rendered much more certain by catheterisation of the ureters, which I was privileged to be amongst the earliest to do in 1886, but to Kelly of Baltimore is due the credit of working out the subject systematically and demonstrating with what facility it may be done Already, however, this is replaced by a much superior method, the idea of E Lambotte of Brussels who in 1890 invented an instrument which when passed into the bladder collects the urine from each side and conveys it to two separate bottles The invention in 1898 of a segregator by Harris of Chicago has still further extended the usefulness of this method, so that there is now no longer need for doubt in any case as to whether the disease is limited to one or involves both kidneys The most recent advance in renal surgery has been in the treatment of chronic nephritis or Bright's disease, which was first drawn attention to by my friend Mr Reginald Harrison who recommended renal puncture or incision in certain cases of chronic albuminuria, but to Edebohl of New York must be given the credit of adopting an original operation for the treatment of Bright's disease He in 1898 deliberately exposed both kidneys, stripped their capsule, and fixed them in position in a young woman, aged 26 years Frequent examinations during the five years showed in every instance normal conditions and the patient has recently married and is well In March of this year Edebohl reported 51 cases of renal decapsulation and in 47 of these cases both kidneys were operated on at the same time Out of this large number 22 are said to be improving from three to 15 months after operation As yet it is too early to pronounce a definite opinion on the procedure but it is an undoubted fact that decapsulation does effect some improvement in this serious malady, and it may possibly prove effectual in saving life in those terrible cases where suppression of urine comes on after some trifling operation, such as catheterism, or after a chill, or in scarlet fever, just as surgery has effectually stepped in and saved life where suppression was due to obstruction of both ureters We may certainly go so far as to say that no patient ought to be allowed to die from suppression of urine without the surgical question being considered

[Mr Mayo Robson then referred to the possibility of success attending the organised search into the cause of cancer, to recent successful developments in serum therapy, and to Professor Wright's researches, as published in THE LANCET,[3] with regard to localised staphylococcus infection and concluded his eloquent address thus —]

Gentlemen, I have tried to show that the advances in treatment during the past third of a century have been commensurate with our increased knowledge of disease and simply on account of time have I limited myself in a great measure to diseases of the abdominal cavity I have tried to show what a close connexion exists between the science and art of our profession and how very necessary it is, if we are to continue our march of progress, that experimental research should not only be untrammelled by factious and unreasoning opposition, but that it should receive greater recognition, encouragement, and support at the hand of the public I have tried to forecast the future and to show that while surgery has still great strides to make and many difficulties to conquer, such progress will be in a great measure intimately bound up with the work of the physician, the pathologist, and the bacteriologist, and I think the time will come when preventive measures such as I have portrayed will save much operative work and when it will be thought a greater triumph to prevent than to cure disease We can see that methods and policies which were sufficient years ago are totally inadequate to day We may modify but we cannot prevent the world's advance, and while times change men change with them The medical profession is imbued with a spirit that half a century ago was undreamed of Not only have apparently insurmountable difficulties been overcome, but habits of thought have been attained which have made such achievement possible, and a scientific attitude of mind has become characteristic of our profession, as it has of the leaders in every branch of the world's progress In becoming more scientific it is a mistake to suppose that the medical profession has lost touch with higher beliefs As Lord Kelvin has so happily stated it lately, "Science positively affirms creative power We only know God in His works, but we are absolutely forced by science to believe with perfect confidence in a directive power, in an influence other than physical, or dynamical, or electrical force" There is no harm in free thinking, for if we think strongly enough we are forced by science to a belief in a higher power, which is the foundation of all religion. In conclusion, I must thank you for giving me so patient a hearing and at the same time I would apologise for many conscious omissions which had time permitted would not have occurred I trust, however, that what I have said will serve to show that we are one and all imbued with a desire to carry out our duties conscientiously and to live up to the privileges of our high calling

The Milroy Lectures

ON

THE CAUSES, PREVALENCE, AND CONTROL OF PULMONARY TUBERCULOSIS.

Delivered before the Royal College of Physicians of London on March 5th, 10th, and 12th, 1903,

BY H TIMBRELL BULSTRODE, M A,
M D CANTAB, D P H,

INSPECTOR MEDICAL DEPARTMENT, H M LOCAL GOVERNMENT BOARD; LECTURER ON PREVENTIVE MEDICINE CHARING CROSS HOSPITAL MEDICAL SCHOOL

LECTURE II (*concluded*)[1]

Delivered on March 10th

THE BEHAVIOUR OF TUBERCULOSIS IN ITALY

IT would appear from the statistics[2] which are available for the kingdom of Italy that if we consider in one group all forms of tuberculosis there has been since the year 1888 a decided tendency towards decrease In 1887 the mortality

TABLE X —SHOWING THE MORTALITY IN ITALY FROM [illegible] PER 1,000,000 OF THE POPULATION FOR EACH OF [illegible]

—	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
Disseminated tuberculosis	243	311	307	293	296	282	[illegible]	282	318	240	245	247	[illegible]
Pulmonary tuberculosis	1078	1084	1064	1071	1010	1022	977	1022	1024	[illegible]	957	[illegible]	[illegible]
Disseminated scrofula and lupus	113	101	98	95	85	81	70	73	64	61	60	43	45
Tuberculous meningitis and hydrocephalus	180	193	190	178	202	192	[illegible]	178	145	150	142	144	134
Tabes mesenterica and intestinal tuberculosis	462	421	391	355	377	367	357	329	327	352	295	[illegible]	275
Tuberculous disease of the joints	29	25	23	26	30	27	26	21	25	22	21	17	17
Tuberculosis of the bones	—	—	—	—	—	—	—	—	14*	26*	23*	[illegible]*	[illegible]*
Totals	2110	2135	2133	2031	2000	1971	1911	[illegible]	[illegible]	[illegible]	1778	[illegible]	[illegible]

* Antecedent to the year 1895 tuberculous disease of the bones was classified with other diseases of the bones and not included among the deaths from all tuberculous diseases

at three years, which is a longer period than is generally given for this disease, we would have 2700 cases of tuberculosis on hand in the city. As we have at present 2500 located and carded it can be seen how thorough and successful our system of reporting has been."

---

[1] Lecture I and the first part of Lecture II were published in THE LANCET of July 11th (p 73) and 25th (p 205) respectively

[2] Malattie Infettive e Diffusive, Ministero dell Interno Ispettorato Generale della Sanità Pubblica Roma [illegible]

[3] THE LANCET, March 29th, 1902 p 874

Some epidemiologists in this country will regard the prophecy of Major Gorgas as somewhat too optimistic. They will wish to know something as to the introduction of better diagnostic methods and as to better registration made use of by the Americans before they can accept the figures as a basis for the inferences arrived at. For my own part I will withhold criticism, for as regards yellow fever it must, I think, be admitted by all fair-minded persons that the work of the Americans in Havana has resulted in perhaps what must be regarded as the most remarkable victory ever achieved by preventive medicine. These Havana statistics with regard to tuberculosis furnish the most hopeful picture which I shall be able to show you. If they are sound they serve to show what an enormous amount may be effected by well-organised education and without the aid of either sanatoriums or hospitals for advanced cases.

And here, Mr. President, I would ask for your indulgence while I have thrown upon the screen a table which has been taken from an address recently delivered by Sir Patrick Manson before the Epidemiological Society of London and which illustrates the behaviour of yellow fever in Havana during the period of the American occupation (see Table XVI.). I make this request, not only because the figures have obviously some bearing upon those we have just considered, but also because I should be glad to be allowed to show here my deep appreciation of the epoch-making and truly heroic work of our American *confrères* in connexion with the etiology, the pathology, and the control of yellow fever.

This table apparently teaches us many lessons. It shows us what may be done by a vigorous and dominant race, sparing no time, energy, or expense to apply the lessons learnt, not in the laboratory, but in wards in which men freely allowed themselves to be experimented upon in order to prove or to disprove a laboratory thesis. The table illustrates, too, what victories may be secured for preventive medicine when she is engaged in warfare with a foe which is itself the host of the specific parasite against which her efforts are directed. In the case of yellow fever the war is against the *stegomyia fasciata* and its larvæ. Both may be destroyed. But in tuberculosis the host, or rather the only host with which we are here concerned, is the human species, and we can destroy neither the mother nor her progeny, nor can we, for it may be for years, separate the one from the other.

TABLE XVI.—SHOWING THE BEHAVIOUR OF YELLOW FEVER IN HAVANA.

Months.	1890-91	1891-92	1892-93	1893-94	1894-95	1895-96	1896-97	1897-98	1898-99	1899-1900	1900-01	Average.	1901-02*	1902*
April	13	5	8	8	4	6	14	71	1	2	0	12·00	0	0
May	23	7	7	23	16	10	27	88	4	0	2	18·81	0	0
June...	38	41	13	69	31	16	46	174	3	1	8	40·00	0	0
July...	67	66	27	118	77	88	116	168	16	2	30	70·45	1	0
August	60	66	67	100	73	120	262	102	16	13	49	84·36	2	0
September	33	65	70	68	76	135	166	56	34	18	52	70·27	2	0
October...	22	48	54	46	40	102	240	42	26	25	74	66·27	0	0
November	15	24	52	28	23	35	244	26	13	18	54	48·36	0	0
December	9	17	33	11	29	20	147	8	13	22	20	29·90	0	0
January	10	15	15	7	15	10	69	7	1	8	7	14·90	0	0
February...	3	10	6	4	4	7	24	1	0	9	5	6·63	0	0
March	4	1	4	2	2	3	30	2	1	4	1	4·90	0	0
Totals	307	365	356	484	390	552	1385	745	128	122	302	466·85	5	0

* Year of American occupation.

N.B.—This table is taken from a paper recently read before the Epidemiological Society of London by Sir Patrick Manson.

Were we dealing with bovine tuberculosis alone we might, by adopting in their entirety the methods of Professor Bang, practically eliminate bovine tuberculosis, but the only method which occurs to me of at once stamping out tuberculosis in the human species is to segregate all those who react to the tuberculin test and the application of the same test to each traveller reaching our shores. We can act in this fashion, but only to an uncertain degree, in the acute specific diseases, lasting at most two months, but there are obviously difficulties in applying the same method to a disease from which apparently some 25 per cent. of the people suffer at one or another period of their lives and for prolonged periods.

THE BEHAVIOUR OF PULMONARY TUBERCULOSIS IN NORWAY.

I am anxious to place before you the statistics of Norway, because in my last lecture I shall draw attention to some very embracive measures which have recently been brought into operation for the control of this disease. For these statistics (see Table XVII.) I am indebted to Dr. Holmboe, the Director of the Civil Medical Service. It will be seen from these figures that the disease in question is evincing an upward rather than a downward tendency.

TABLE XVII.—*Showing the Death-rate from Pulmonary Tuberculosis per 10,000 of the Population in Norway.*

Year.	The kingdom.	The towns.	The rural districts.
1893	18·0	27·0	15·0
1894	18·0	28·0	15·0
1895	18·7	29·0	15·0
1896	19·0	26·0	16·0
1897	20·0	27·0	17·0
1898	21·0	29·0	17·0
1899	22·0	29·0	19·0
1900	22·0	27·0	20·0

The average rates for the three years 1898–1900 ranged in different parts of the kingdom from 11·0 to 45·0 per 10,000.

THE BEHAVIOUR OF PULMONARY TUBERCULOSIS IN ENGLAND AND WALES.

Most of my hearers are, I expect, fully acquainted with the behaviour of pulmonary tuberculosis in this country and I will therefore devote but a short space to its consideration. I have, however, been curious during my researches to ascertain how far Professor Koch's thesis, that the decline and the death-rate in most civilised countries are to be ascribed mainly to the better knowledge of the disease which has resulted from the discovery of the bacillus, receives illustration in this country.

In order to apply this view to England and Wales I have taken the rates for pulmonary consumption for each of the three five-yearly periods preceding the period 1881–85, during which time the tubercle bacillus was discovered, and I have compared these rates with those of the three five-yearly periods which succeeded 1881–85. After due consideration, this appears to me to be the fairest method, but I shall be very glad to reconsider the question in the light of any other [illegible] d enough to suggest. [illegible] the accompanying table [illegible] that during what we may [illegible] e death-rate per 10,000 from phthisis fell from 24·4 to 20·3, that is 4·1 per 10,000, whereas during the 15 years succeeding the period during which the bacillus was discovered the rate fell from 16·3 to 13·2, that is to say 3·1 or 1 per 10,000 less than it fell in the pre-bacillary stage.

TABLE XVIII.—*Showing the Deaths from Pulmonary Tuberculosis in England and Wales per 10,000 of the Population for each Quinquennial Period from 1866 to 1900.*

1866–70	24 4	1881–85 ...	18 5	1886–90	16·3
1871–75	22·1			1891–95	14 6
1876–80	20·3			1896–1900	13 2
(Difference 4·1—i.e., a percentage fall of 16 8.)				(Difference 3·1—i.e., a percentage fall of 19 0.)	

We have then a slightly increased rate of fall after 1881–85 as compared with the rate prior to that period. Obviously the rate decreases as the base line is reached, but so far as [illegible] ere was some factor—[illegible] bacillus involved—which [illegible] d with a force almost as great as was the case during the 15 succeeding years in which a more intimate knowledge of the morphology and biology of the tubercle bacillus has been disseminating.

THE BEHAVIOUR OF PULMONARY TUBERCULOSIS IN AUSTRALASIA.

I am indebted to Major J. S. C. Elkington for drawing my attention to an interesting account by Mr. T. A. Coghlan, statistician of New South Wales, on the behaviour of pulmonary tuberculosis in Australia.[5] Mr. Coghlan points out that although pulmonary tuberculosis claims more victims than any other disease, the death-rates from this disease are lower in Australasia than in other parts of the world. This is the case notwithstanding the fact that as the Australian climate is regarded as favourable to those who suffer from consumption many patients afflicted with this disease are imported into the colonies for curative purposes; indeed, it is estimated that some 7 per cent. of those who die from pulmonary tuberculosis in the Australian colonies have been resident therein [illegible] ing tables (Tables XIX [illegible] Coghlan's work, wo [illegible] pulmonary tuberculosi [illegible] of Australasia, but that since that date a steady decline has taken place.

TABLE XIX.—*Showing the Deaths from Pulmonary Tuberculosis per 10,000 living in Australasia.*

State.	1871–75.	1876–80.	1881–85.	1886–90.	1891–95.	1896–98.
New South Wales...	9 23	10·16	11·41	9 90	8 64	7 90
Victoria	12 02	13·13	14·10	14 55	13·32	12 37
Queensland	10 93	13 01	17·31	13 35	10 93	9 39
South Australia ...	8 92	10 23	10 60	10 63	9 95	8·75
Western Australia	*8 58	8 53	8 57	9 30	7 51	6 51
Tasmania...	10 13	9 85	10 76	9 79	8 54	7·36
New Zealand	*3·72	8 46	9 15	8 39	8 15	7 93
Australasia	10 09	11 06	12·22	11·43	10 25	9 27

* Four years, 1872–75.

TABLE XX.—*Showing the Proportion per cent. of Deaths from Pulmonary Tuberculosis to Total Deaths in Australasia.*

State.	1871–75.	1876–80.	1881–85.	1886–90.	1891–95	1896–98.
New South Wales...	6 19	6·31	7·27	7·17	6 77	6 58
Victoria	7 69	8 59	9 62	9 05	9·45	8·73
Queensland	6·03	7 69	9 06	8 00	8 62	7·41
South Australia ...	5 63	6 90	7 21	8 47	8 19	7 35
Western Australia...	*5 13	5·99	4 98	5 82	4 60	3 84
Tasmania...	6 48	5·96	6 72	6 46	6 50	6 01
New Zealand	*6 46	7·14	8 32	8 50	8 03	8 47
Australasia	6 61	7·35	8 26	8 19	8 04	7 49

* Four years, 1872–75.

As regards the separate colonies Victoria yields the highest death-rate, Queensland coming next, and Western Australia last. With respect to the high Queensland rate both Mr. Coghlan and Dr. A. Jefferis Turner[6] attribute it to the excessive mortality from pulmonary tuberculosis of the South Sea Islanders and in this connexion Dr. Turner furnishes some tables which tend to the conclusion that in Queensland this disease among the white population is on the decrease.

It will be seen from the accompanying table (Table XXI.), compiled by Dr. Turner, that during the period 1891 to 1900 the tendency of pulmonary and other forms of tuberculosis has been slightly downwards, whereas the tendency of pneumonia, cancer, and heart disease has been upwards.

TABLE XXI.—*Showing the Mortality in Queensland from Consumption, other Tuberculous Diseases, and all Tuberculous Diseases, as compared with the Mortality from Pneumonia, Cancer, Heart Disease, and Typhoid Fever per 100,000 Mean Population in each year.*

Year.	Deaths per 100,000 from						
	Consumption.	Other tuberculous diseases.	All tuberculous diseases	Pneumonia	Cancer.	Heart Disease.	Typhoid Fever.
1891	124	17	141	42	33	21	26
1892	102	23	125	54	31	20	30
1893	112	22	134	61	28	31	26
1894	102	20	122	69	36	25	23
1895	93	15	108	66	42	35	16
1896	95	19	114	81	39	43	28
1897	87	14	101	69	39	40	38
1898	85	17	102	73	46	40	30
1899	80	16	96	53	48	47	29
1900	87	15	102	63	47	40	23

But the fall in the death-rate from tuberculosis, so far as the white population is concerned, is only apparent and it will be seen from the next table (Table XXII.) that when the deaths are separated out the decrease is due to the diminishing number of Pacific Islanders whose deaths are attributed to pulmonary tuberculosis.

TABLE XXII.—*Showing the Number of Deaths in Queensland from Consumption classified according to Birthplace.*

Year.	Birthplace		
	Pacific Islands.	Australasian States and Colonies.	Elsewhere.
1891	187	57	257
1892	123	62	243
1893	124	89	263
1894	117	63	266
1895	95	67	233
1896	108	58	252
1897	91	52	245
1898	65	83	267
1899	66	110	231
1900	79	114	234

A further study of the figures, however, reveals the extremely interesting fact that the augmented mortality among the whites is wholly to be attributed to the deaths of those born within the Australian dominions, there having

---

[5] The Seven Colonies of Australasia, 1899–1900, T. A. Coghlan.

[6] Report on the Proceedings of the International Congress for the Preventi [illegible] year 1901, by A. Jefferis [illegible] Representative of the St [illegible]

It will be seen that the increase was greatest between 1881 and 1891 and that the difference between 1891 and 1901 was but slight. Table XXVII. is also instructive as showing that in 1871 the death-rate from pulmonary tuberculosis in Ireland was 4·2 per 10,000 below that of England and Wales. In 1901 the English rate was 8·8 per 10,000 below the Irish rate. These figures suggest many interesting fields for further inquiry, but I cannot now devote more than a very small space to the subject. It may, however, be noted that the rates for Ireland compare favourably with those of certain other countries which have come beneath our notice in this lecture, save that in Ireland there has been no such decrease as has been elsewhere observed. It will be of interest if I furnish herewith the rates for the several forms of tuberculosis for the last 11 years (Table XXVIII.).

TABLE XXVIII.—*Showing the Death-rates in Ireland per 10,000 Persons Living for the last 11 Years.*

Year.	Tabes mesenterica.	Tuberculous meningitis.	Pulmonary tuberculosis.	Other forms of tuberculosis.
1891	2·0	1·7	21·4	2·1
1892	2·4	1·9	21·6	1·9
1893	2·1	1·8	21·4	2·1
1894	2·0	1·3	20·9	2·0
1895	2·0	2·5	21·4	2·1
1896	1·7	2·4	19·9	2·2
1897	2·2	2·5	21·5	2·3
1898	2·3	2·6	21·4	2·5
1899	2·3	2·7	21·0	2·3
1900	2·2	1·6	22·5	2·2
Average 1891–1900	2·1	2·1	21·3	2·2
1901	2·3	1·4	21·4	2·4

It is possible that the small increase noted between 1891 and 1900 may be apparent only and that such rise may be accounted for by the recognition, and therefore classification, of cases which formerly found a place under some other heading. But it is of course difficult to determine what in any given case is the result statistically of a better recognition of a disease.

I have had the pleasure of discussing this question of the increase of tuberculosis in Ireland with Mr. Stafford and he has been good enough to send me some of his preliminary reflections upon this interesting subject. He writes: "I am very interested to ascertain approximately to what extent tuberculous disease depends upon (*a*) infection; (*b*) density of population; (*c*) general insanitary conditions; (*d*) climatic influences; (*e*) economic causes. Without in any way desiring to cast a doubt upon the important influence of infection as a means of distributing the disease, I fear we may possibly lose sight of the more responsible factor which is at the bottom of the whole question—I refer to economic causes. I am inclined to look upon all the others I have mentioned merely as the agents acting upon a population which from economic causes is unable to resist the disease. Whilst I do not for one moment suggest that we should not vigorously attack these agents and do great good by so doing, if we desire to get down to the bed-rock we must deal with the question upon an economic basis. I am at present engaged in some researches somewhat on the lines of Mr. Rowntree's York experiment with a view to ascertaining how the working classes of Dublin live. I do not wish to anticipate the result of these investigations, but I believe they will show a general condition of deplorable poverty and an unduly large proportion of underfed, badly clothed, and generally ill-nourished men, women, and children, endeavouring to live under conditions which, to say the least of it, are not conducive to longevity. The result in Dublin is a very high general death rate and an exceptionally high rate of mortality from tuberculosis. Throughout this country the steady outflow of the healthiest amongst the male and female population does not tend to improve the physical condition of the race, as in addition to draining away the fittest and depriving the country of their labour we have left at home to keep up the stock what are comparatively speaking the weaklings. We have, therefore, in addition to ordinary public health administrative measures, if we wish to deal effectually with tuberculosis, to face grave economic problems. In England you have reduced your death-rates generally, and your tubercular death-rate in particular, because you have improved the condition of the people. Higher rates of wages and a better standard of living, together with better housing and improved sanitation, are the means by which the improvement has been carried out." I may add that those who are interested in this question will find a thoughtful paper in a recent number of the journal *Tuberculosis* by Mr. Robert Brown, honorary secretary of the Ulster Branch of the National Association for the Prevention of Consumption.

Some will doubtless contend that the reason why tuberculosis does not decline in Ireland is the absence of notification and other direct measures, but that this is only one of the minor factors in the problem must, I think, be apparent from the fact that the disease had been rapidly diminishing in England and in certain other countries in the entire absence of any such measures as notification, isolation, disinfection, or the limitation of promiscuous expectoration. All these measures should so far as practicable certainly be taken and the Local Government Board for Ireland has recently issued some excellent leaflets directed towards this end. I am glad, too, to see that Sir Douglas Powell has visited Cork with a view to encourage the foundation of a local branch of the National Association for the Prevention of Consumption. In the able address which Sir Douglas Powell delivered he stated, *inter alia*, that "the prevention of consumption involves a much wider issue than the circumvention of the bacillus. ...... The abolition of the Corn Duties and other Free Trade legislation and improved rates of wages have done more to diminish the death-rate from consumption than any notification law against the disease would have been likely to have effected." With this view I am much in sympathy and it seems to me that the apparent behaviour of tuberculosis in different countries, and more particularly among certain races and blends of races, suggests that the condition of the host should receive more attention than it has hitherto done. I am gratified in this connexion to find myself in agreement with such an eminent authority as Sir Dyce Duckworth when he says that "some of our younger physicians are inclined to reckon without their host."[8]

The modern treatment of tuberculosis must be regarded as being directed almost solely towards the alteration of the tissues of the host in such fashion as to render them immune to the operations of the parasite which has already obtained a hold upon the tissues. Although we find in sanatoriums the greatest care being exercised with regard to the parasite outside the body the main efforts of these institutions are directed to the destruction of the parasite inside the body. It is certainly desirable to destroy the parasite wherever it is found or likely to survive, but no one can well attach so much importance to disinfection, &c., as is to be attached to the steps taken to promote the resistance of the tissues against the bacillus.

In connexion with this subject of the control of tuberculosis there is, I venture to think, too great a tendency to assume that the discovery of the tubercle bacillus has fundamentally changed the face of affairs. But this is in no sense the case. The natural history of the disease has not become modified merely because we have unearthed one of the essential agents by which nature works her ends. The fact that the bacillus is contained in the dried sputum and in the droplets given off by the subjects of pulmonary and laryngeal tuberculosis during coughing and speaking does not enhance the degree of communicability of the disease, albeit the knowledge that light and air are prejudicial to the vitality of this bacillus should enable us the better to employ both these agents in the battle against the disease. But it is of equal importance for us to determine, if possible, precisely what are the conditions under which for many years past both in this and other countries, and in the absence of measures aimed directly at the disease, its manifestations in the human species have been diminishing in extent. It would appear not unlikely that in this falling phthisis-rate we may be reaping the result of the several measures which have been aimed directly against other diseases and against general insanitary and unwholesome conditions Such measures have comprised the provision of more air, more light, greater cleanliness, better houses, cheaper food, and a better appreciation of the laws making for our general well being

---

[8] The Clinical Importance of the Personal Factor in Disease, by Sir Dyce Duckworth, M.D., LL.D. Edin. (Sonderabdruck aus der Berliner Klinischen Wochenschrift, 1902, No. 16.)

Do not, therefore, let us accept without further examination, and in face of some of the facts herein set forth, the view that the reduction of the disease has been the result in the main of the discovery of the tubercle bacillus, because this is it seems to me, a view which is not unlikely to concentrate our efforts too much upon one side of the problem Above all, let us be cautious lest in concentrating our attention too exclusively on the bacillus we may divert the tide of energy and financial support from the continuance of those indirect measures which have apparently done so much not only for the reduction of pulmonary tuberculosis but also for the abatement of multiple other conditions detrimental to health and well being

A CASE OF RECURRENT VARIOLOID RASH FOLLOWING VACCINATION

BY R W O PIERCE, B Sc , M B LOND , D P H CAMB ,
MEDICAL OFFICER TO THE GUILDFORD GODALMING, AND WOKING JOINT HOSPITAL BOARD

A BOY, aged 15 years, whose primary vaccination took place at seven years of age and was said to have been normal, was, in common with a large number of other boys attending the same school, revaccinated on Dec 5th, 1901, with calf lymph of a well known make The lymph was obtained in batches of 24 or 48 tubes and each tube served for the vaccination of two boys Nothing abnormal occurred except in the case of the boy in question who, like the others, was one of two vaccinated from the same tube His vaccination was successful and nothing unusual was noticed about the arm The boy left for his home in the north on Dec 16th and was seen on the same day by his medical attendant to whom I am indebted for the following history "He came home on Dec 16th suffering from mumps [which had been prevalent at the school] and was at once sent to bed and isolated On Dec 24th—i e., 19 days after vaccination—small pox showed itself, being ushered in by febrile excitement, with increase of temperature, &c The vesicles were numerous on the face, a fair sprinkling on the body, arms, and legs, and many on the hands and feet, including the palms and soles The vesicles had the usual amount of areola. I do not remember if there were any in the mouth, though there were many on the lips The eruption developed fully and followed the normal course The general symptoms were mild He was carefully isolated at home for six weeks The scabs from vaccination were still on the arm when he returned home and he was steadily recovering from mumps when the small pox showed itself "

On Feb 22nd, 1902, the boy returned to school apparently quite well On March 4th he was seen by the medical officer on account of conjunctival catarrh and on the 5th was placed in the school sanatorium which happened at that time to be empty On the 6th he developed three or four vesicles of large size about the upper lip and alæ of the nose which, in connexion with his conjunctival catarrh, were taken to be herpetic The main part of the eruption appeared on the morning of the 7th On that evening I saw the boy for the first time and the following are the rough notes which I took then and on subsequent days —

scrotum and a few scattered over trunk and l s
One large soft bleb on upper lip and a hard vesicle or two near nostril and on forehead Rash very irritating

In view of the typical character and distribution of the rash (except, perhaps, that on the face) a diagnosis of modified small pox was made In this the medical officer to the school concurred and the diagnosis was confirmed during the next two days by two experienced medical men who were called in The only other occupants of the sanatorium—viz , the nurse and the maid—were successfully revaccinated at once I next saw the case on the 9th (two days later) when the condition found was as follows —

Rash
feel has
become
backs of
some co
of an in
flatter s
rough sl March 10th —Rash on back of hand about the same as yesterday but in a few pocks there is a small central vesicle or pustule over central dot or umbilicus and the surrounding part of vesicle seems more fleshy and devoid of contents as if contents of vesicle had exuded laterally and uniformly into the surrounding skin No raised vesicles on palms Lesions on feet also enlarged red flattened and one or two with tiny central vesicle or pustule March 11th —Lips still swollen and sore Eruption distinctly paler and now presents following appearances Pocks with small central depression vesicle or scab and enlarged circular raised pinkish red areola Whether this is the remains of a collapsed
la is not evident One or
Appearance on palms as
ermis with no raising of
on dorsum of hand
over spots no more
ow feel harder and
uneven and raised not dark General appearance of rash now more like usual varioloid rash at this stage Lips still with dark crusts Tongue unevenly furred April 1st — Patient discharged All the pocks have peeled out Hands and feet rough from presence of unpeeled skin between sites of pocks

In arriving at the diagnosis of varioloid the chief feature relied on at the time was the typical character and distribution of the rash The onset was, no doubt, mild and the development of the rash was somewhat rapid even for modified small pox, but these and other objections were outweighed by the character and distribution—viz , a vesicular, umbilicated rash, chiefly on both surfaces of the hands, wrists, and feet, with markedly "shotty " feel Whilst the appearance of the rash on the second day of its appearance was considered typical of varioloid it must be confessed that the changes that had occurred by the fourth day were a little disconcerting—viz , the enlargement and flattening of the pocks By the eighth day, however (March 13th), the scabs seemed to have regained the appearance of varioloid at the same stage It may be that a larger number of vesicles ought to have been present on the face in order to conform to the typical distribution and it might be objected that one or two of these were large and bleb like

Obviously against the theory of its being modified small-pox was the absence of a severe onset and fever There was certainly considerable constitutional disturbance as shown by the condition of the tongue, lips, &c , and the presence of anorexia. The strongest evidence against is the fact that the patient had an attack of what was taken to be small pox two months before and what is scarcely less significant—that he was successfully revaccinated three months previously There was no known exposure to infection on either occasion A case of small pox of unknown origin was, however, notified in a neighbouring town on Feb 17th and several cases occurred at the latter end of March in the town close to which the school is situated—the origin of which also was untraced The boy was in the habit of going by train to different places with the football team and he travelled from the north through London on Feb 22nd—i.e , 12 days before the rash appeared in the second attack. In short, the possibility of exposure to infection could not be altogether excluded

With regard to the question whether the two attacks were of the same nature, it may be mentioned that the patient himself as well as his mother who helped to nurse him on both occasions, were satisfied as to the similarity of the attacks which had but minor differences From the data available it is probable that the two attacks, whatever their nature were identical Even allowing that the attacks were dissimilar in character, one being, e g , varioloid and one a manifestation of vaccinia, the explanation of the attacks in view of the almost equal immunity against recurrence mutually exhibited by the two infections would be none the less difficult

The alternative diagnosis of the case is that the rash had some connexion with the revaccination As already mentioned the lymph used was part of a large batch obtained at the same time and no abnormal results followed its use in any other case. The maker when applied to wrote that "he d made no alteration in the methods of preparing lymph r many years past and all tubes of a batch were absolutely ke." In the recent literature, however, I have been able to find a case on all fours with this. It differed from e recorded cases of generalised vaccinia in that there was recrudescence at or near the site of the original vesicles d that the rash did not appear until nearly three weeks ter vaccination. Dr. T. D. Acland in his exhaustive icle on vaccinia in Allbutt's "System of Medicine" tes that "vaccinal eruptions are usually characterised by eir temporary duration and irregular distribution and by eir concurrence with vaccination; they were often attended th much irritation, considerable general disturbance, and me pyrexia." "Generalised vaccinia occurs, as a rule, comratively early after vaccination, either one or two days fore or one or two days after the pock at the seat of oculation has arrived at maturity—that is to say, not nerally before the fourth day or after the tenth. The te of its appearance may, however, vary considerably."

During the recent epidemic of small-pox many cases of ccinal eruption have been recorded. Dr. Norman Walker[1] 1901 published and illustrated a case of erythema multime closely resembling small-pox which was somewhat nilar to the case under notice. It was not at first cognised as having any connexion with vaccination, but r similar cases were subsequently seen in which "the ythema appeared in from four to five weeks after the ccination *and in all cases there was a recrudescence of tivity in the vaccination marks.* In the first of these cases e lesions were so like those of small-pox that the patient s very nearly removed to hospital."

Bowen,[2] in September, 1901, published an article on six ses of Bullous Dermatitis following Vaccination and sembling Dermatitis Herpetiformis which were observed Boston from 1895 to 1900. These appear to have been ses of mixed bullous and vesicular eruption of various sizes d *with marked grouping*, the eruption appearing from one four weeks after vaccination and persisting with occanal intervals of freedom for months or years. Itching s usually absent. There was a tendency to grouping out the mouth, nose, ears, the backs of the hands and ists, the ankles, and the feet.

A case of general vaccinia was published[3] last year by eeman in which several "shotty" papules occurred about e left wrist and back of the hand on the sixth day after ccination. On the eighth day all the papules were either sicular or semi-pustular and were umbilicated and multicular. *The palms were quite free as were all other parts of e body except those mentioned.* Another case was described[4] Stewart in which three weeks after revaccination a man veloped numerous large "shotty" papules on the left side his neck which next day covered the entire neck. There ere many vesicles which showed well-marked umbilication. he wrists and forearms, the back of the hands, and foread then became covered with a profuse papular rash. ll trace of the eruption had disappeared in about a week d was succeeded by a slight brawny desquamation lasting few days.

Numerous cases of recrudescence of the vaccine vesicles ithin a few weeks of vaccination have been published and few cases of "latent" vaccinia in which vesicles or scabs rmed on the sites of the original and unsuccessful vaccinaon in one instance two and a half years later, as published by e late Dr. J. W. Washbourn,[5] and in another nine months ter, reported by Dr. J. Mackenzie.[6] Of the recently pubshed cases to which I have been able to refer, the one now nder notice appears to have more closely resembled r. Norman Walker's case than any other. In the latter, owever, the lesions, as shown by the illustration published, eem to have been of various sizes and the umbilication not ery well marked. Moreover, the eruption is reported to ave rapidly disappeared and there is no history of "peelng." In none of the other cases does there appear to have een a well-marked eruption on the palms with the haracteristic "shotty" feel.

The nature of the attacks and the explanation of the ecurrence I must leave to those more competent to form an opinion. It was, however, felt at the time of the second attack, in view of its very suspicious character and similarity to the previous attack, which had passed as small-pox without question, that the isolation of the patient was the most prudent course to pursue.

The case may have an interesting bearing on the connexion between variola and vaccinia and, assuming that the eruption was caused by the vaccination, suggests that vaccinia when introduced into a subject of high susceptibility or of a certain idiosyncrasy may partly revert to its original character. It is an interesting fact that the boy's mother when revaccinated developed a fresh vesicle on the site of the successful vaccination seven weeks later, which suggests an unusual family "receptivity."

As the possibility of exposure to the infection of small-pox can, however, not be excluded that disease must be considered, and although a severe onset with fever is usually deemed essential to the diagnosis of the disease it might be urged that the recent vaccination, whilst not sufficiently protective against an attack of small-pox, was yet powerful enough greatly to modify the symptoms.

Guildford.

---

[1] Scottish Medical and Surgical Journal, April, 1901.

[2] Journal of Cutaneous and Genito-Urinary Diseases, September, 901.

[3] A Case of Generalised Vaccinia, Brit. Med. Jour., March 1st, 1902, p. 509.

[4] Ibid., June 28th, 1902, p. 1602.

[5] The Lancet, March 8th, 1902, p. 664

[6] The Lancet, March 29th, 1902, p. 920.

THE ILL-HEALTH OF RICHARD WAGNER.

By GEORGE M. GOULD, A.M., M.D.,

EDITOR OF "AMERICAN MEDICINE."

The following quotations are from the Life of Richard Wagner by Glasenapp and Ellis, and from the volumes of Letters to Heckel, Wesendonck, and Liszt. I regret exceedingly that the reproduction here of so large a number of excerpts is necessary. I have omitted many that it seemed possible to spare and not to spoil the clinical picture. Only by careful reading can one get a clear idea of Wagner's sufferings and symptoms and be thus enabled to come to a sound diagnosis of the one malady that resulted in such various and lifelong symptoms.

Richard Wagner was born in 1813. ...... His delicate constitution required peculiar care, for he was already troubled with that irritating form of erysipelas (? erythema or eczema) which recurred at intervals throughout life. ...... Down to his sixth year he had no regular lessons; his mother wished to give him time to pick up strength and would not have him plagued with school work. ...... A pale, slim little chap in short-armed frocks, but unruly enough already—thus these traditions show the tiny Richard. (G., p. 61.)

My good uncle tried his best to put me through some educational training. ...... That I did not profit much by his instruction was, I fear, my own fault. I preferred rambling about the little country town and its environs, to learning the rules of grammar. ...... I often beguiled my uncle into reading me a story that I might avoid working. (1821 or 1822.)

By night they had to suffer for each other, as both were most excitable and fitful sleepers. ...... Cäcilie had plenty to say of her brother's sudden shouts and talking in his sleep, his laughter and tears in the night. (1822–23.)

To roam about the country was his chief delight. (Ditto.)

He ranked among the best pupils in that gymnasium from the first and passed through various divisions and classes with fair rapidity. (1822–27.)

He was plagued with his cutaneous malady even in his school days. ...... Repeated attacks of the kind. ...... An attack would be preceded by depression of spirits and irritability of temper. Conscious of his growing peevishness he would seek refuge in solitude. As soon as the attack was subdued his bright animal spirits returned. (Ditto.)

The refinement and energy of his features and the look of wanness and suffering they wore. (About 1838.)

The prose must be turned into verse and the music composed in a fortnight. ...... His nerves have been so overtaxed that he has "often sat down and wept for a quarter of an hour at a stretch." (1843.)

Constant victimage to a feeble stomach while instrumenting *Tannhäuser.* (1845.)

My whole being had been so consumed with ardour for my task that the nearer I approached its completion the more I was haunted by the notion that a sudden death would stay my hand, so that when at last I wrote its closing chord I felt as joyful as if I had escaped some mortal danger. (1845.)

Lonely walks. (1845.)

Devoted some five weeks from July 3rd to humouring his health as well as his unresting brain would let him. (1845.)

Despite the doctor's warnings against my engaging in any such occupation. (Working at *Lohengrin*, 1845.)

The doctor's [illegible] ny interruption of his present cure th [illegible] the outing. ...... The reason for decl[illegible] f blood to the brain, brought on by his exertions of the past season, had not yet left him. (Ditto.)

Scarcely could he himself say for certain whether his state of health were the cause of his low spirits or they the ground of his feeling so unwell; perhaps it was a little of both. (1846.)

The condition of his health just now is proved by his obtaining a three months' leave of absence "to breathe again as man and artist" in Saxon Switzerland. (1846.)

[illegible] (1847-48.)

[illegible] rk from German mythology, [illegible] uld have undertaken it when [illegible] h is followed by "a period of [illegible] ended with a certain lowering [illegible] the form of a serious illness; [illegible] ression of spirits. ...... He felt [illegible] 1848-49.)

[illegible] out this life, in casting off its [illegible] of 1848.)

Gnawing torments. (1848.)

His warrant describes him as "of medium stature, brown hair, wears glasses." (1849.)

His ancient winter foes return, particularly rheumatism, which this time makes an inroad on his heart. (1849.)

He was thoroughly broken down for the present, what with rheumatism and his recent spell of literary work at high pressure. (January, 1850.)

Feeble, full of pain, unable to sleep, in search of quiet. (February, 1850.)

I'm happy to tell you I've got to the root of my illness; a violence done to my spirit had aggravated my bodily ailments to a dangerous pitch. (February, 1850.)

He means to take a journey southwards for complete recovery of his health. (March, 1850).

I've lost my health, my nerves are shattered. For the present I can live for little more than [illegible] health. 1850.)

Ill, very ill as I was. (Letter to Heine, (1850.)

The last pages of this copy I have written in a mood I can intelligibly describe to no one. Candidly speaking, my only wish is to get the hateful manuscript out of the house. (Of *Opera and Drama*, early in 1851.)

Nine years afterwards Wagner refers to the "fatigue" that had come over him when writing *Opera and Drama*, a fatigue that "so sorely weighed upon his brain," that he calls it an "abnormal state of mind."

[illegible] of working [illegible] am obliged [illegible] ordingly, I [illegible] joy I found [illegible], altogether [illegible] warned me [illegible] out having [illegible] to my impulse and pursued—presumably without a break—what I had just begun. So I came to this hydropathic establishment. ...... Had I gone to my *Young Siegfried* in my present state, perhaps I should have become incurable by next spring. (Autumn, 1851.)

I have become a complete water man. This time I was ten weeks in the hydropathic establishment; only on account of the winter setting in early and with great severity have I given up the cure for the present. However, it was sufficient to give me the clearest foretaste of perfect health, a new and indescribable feeling of comfort, &c. (1851.)

This "water" interlude we may take as a not unwelcome relief in the midst of a more intricate topic. [illegible] however, in the vain attempt to diet [illegible] ince that Uhlig began pressing [illegible] Wagner then replied, "I only [illegible] yet I am far less sanguine than [illegible] ea soon exercised a kind of [illegible] is so far on the road to conver[illegible] the testimony of his younger friend's experience. By Christmas he had commenced to experiment on himself in an amateur fashion: "I, also, am doing a sort of water-cure; besides a sponge-down in the morning, cold water drunk in bed." That does not satisfy the zealot Uhlig; he recommends a "*Neptune-girdle*," which *sounds something like a wet* waistband and makes one shiver at the thought of wintry cold in Switzerland. Wagner valiantly attempts it "I followed your advice about the Neptune-girdle at once. I hope it will suit me. On the whole I feel surprisingly better than last year." (Jan. 20th, 1851.) Two weeks later, however, he has paid the penalty of dabbling "I'm rather unwell. By the advice of a first-rate physician, who also is an [illegible] measures. September 16th Wagner goes to Albisbrunn in the commune of Hausen, on the hills to the south-west of Zürich, too ill to think of any *Siegfrieds* for the moment. On the whole, these ten weeks at Albisbrunn appear to have done him temporary good, but rather as a change of air and scene, a relaxation of mental strain, than in any other way. His humour does not forsake him, and it is here that his gigantic plan matures; but when one reads of the treatment to which he is subjected, one can feel nothing save amazement at the power of resistance innate in his constitution. This is how he describes the "cure," a fortnight ere *its termination*: "*My daily programme now:—1. From half-past* five to seven in the morning, cold pack; then cold tub (Wanne) and promenade; breakfast at eight, dry bread and milk or water [no butter allowed, as he says in another letter]. 2. Short promenade again; then a cold compress. 3. Towards 12 o'clock a wet rub down; short [illegible]. Then dinner in my room to avoid [illegible] other victims, so nasty?]. An hour of [illegible] urs—alone. 4. About 5 o'clock another [illegible] promenade. 5. Hip-bath for a quarter of an [illegible] surely in a [illegible] other com[illegible] t-party till [illegible] ck to bed. [illegible] shall even [illegible] (1851.) [illegible] gined for a [illegible] a sense of well-being such as I had never conceived. My indomitable cheerfulness, &c."

[illegible] the end to baths of but [illegible] ne he has raised their [illegible] 55° F., but mental rest [illegible] t which he describes as [illegible] and water for supper; [illegible] boiled, plain, and meat [illegible] still has at heart.

As for Wagner himself departure from a strict observance of cold water soon was forced upon him by the same consideration that had started it—his health. All through this winter—in fact until next autumn—we hear of one modification or another, in the endeavour to restore a shattered set of nerves, culminating in the lesson of experience passed on to Uhlig next October: "Our water-doctors, one and all, don't know enough about nerve troubles. Constitutions like mine are benefited [illegible] entirely. If [illegible] The same wit [illegible] ood Dresden [illegible] o letter last [illegible]; he has great [illegible] ore sympathetic towards [illegible] not at the same time a [illegible] ...... I am taking a rest [illegible] cure. (December 14th, 1851.)

This winter I shall idle for my health, only sketching as thoughts occur to me. (1851.)

[illegible] nature, an unreservedly [illegible] after *all my art!* There, [illegible] from sleeplessness, with great dejection. (Ditto.)

It is to no water establishment that Wagner goes next spring, as once proposed; his faith in that drastic regimen has been rudely shaken during the last few months. Moreover, "it is quite impossible for me to spend half a year at a hydro." ...... Not long ago he had heard of a certain Dr. Karl Lindemann, a fellow exile, then "working remarkable cures in Paris with a marvellously mild water régime. His specialty seems to be nervous disorders." So he had written Lindemann a detailed account of his symptoms and [illegible] cted period; [illegible] good wine; [illegible] I'm to keep [illegible]

The [illegible] y morning I roam about for tw[illegible] rk. My working time I don't [illegible] s by frequently working five t[illegible] ore. I have finished the entire [illegible]

The [illegible] hat even these few lines set me in a violent commotion. I find that I may be able to do something good, but only on condition that I keep a strict watch on myself, and especially that I interrupt my work often and completely divert my thoughts before going on again. (May, 1852.)

Yesterday I finished my *Walküre* after a month of work ...... once [illegible] ked up: no doubt I work at too [illegible] *Walküre* I always feel as if I had [illegible] anxiety ever increasing toward [illegible] at I should spoil something: my [illegible] I choose of remaining, a perfectly healthy man. If you wretched people would only get a good digestion you would find that life suddenly assumes a very different appearance from what you saw through the medium of your digestive troubles. (November, 1851.

[illegible]. How many [illegible] them to that [illegible]

I am walking capitally, quite strong on my legs; only I'm not contented with my head as yet. The nerves of my brain are hideously out of order—agitation or prostration—never any time true repose. (July, 1852.)

My digestion has been in a very bad way of late. (Ditto.)

Peace I did not find. It's all up; there's no youth left in me; to live stands no longer before me; all my making and doing can now decay. The nerves of my brain!—there's the .)

work but slowly, as everything is an uncommon tax on my brain just now. Only to-day have I finished the MS. of my address on the Performing of *Tannhäuser*. ...... It has taken much out of me and I shall have to try to rest it off. (August, 1852.)

Throughout the whole of these six months we hear one constantly repeated cry of "headache," as if the twofold strain upon the mind were wearing out its organ. At no other period does the physical suffering appear to have been at once so acute and so protracted. Is it a condition normally attendant on the birth of a colossal masterpiece? "My health is none of the best, and although my body looks fairly robust, my nervous system is in a serious state of increasing exhaustion. Through this everlasting life of phantasy without any corresponding reality, the nerves of my brain are so severely overwrought that I can only work by spurts now, and with long interruptions, if I don't mean to become a complete and chronic wreck." (Ditto.)

rushed at last so as to polish everything off, I ruined myself again. Often it's like a sharp knife cutting into the nerves of my brain. Moreover I'm feverishly tired in all my limbs; but if only my head will recover, they also will rapidly improve; on it—that laboratory of the imagination—depends everything. ...... Think of it! even this letter almost knocks me down." (August 30th.)

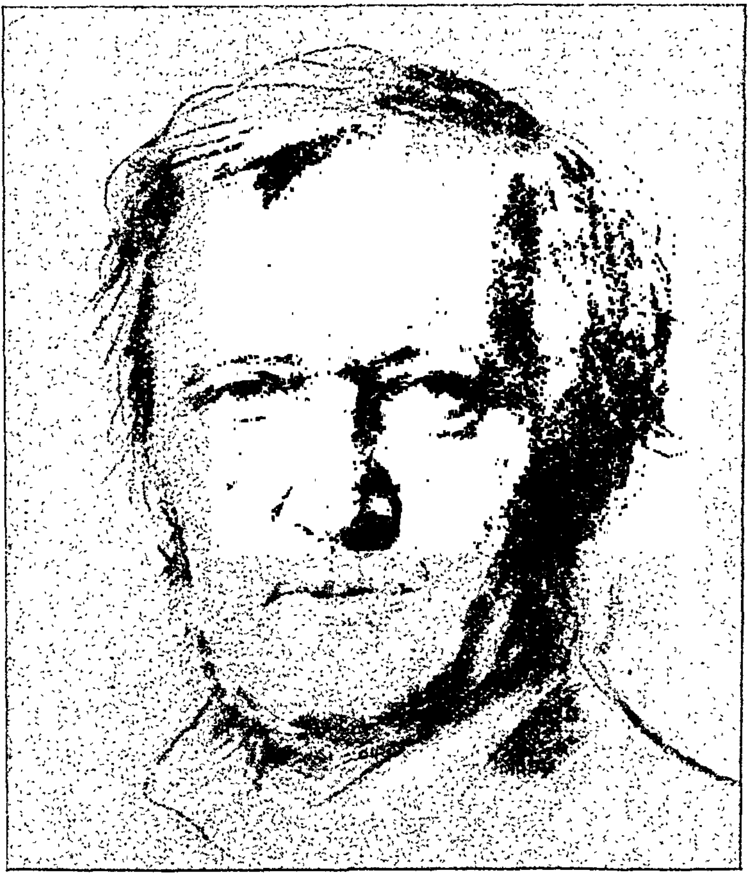
There cause and effect are plain as can be: the spread of *Tannhäuser*, with all the correspondence involved, has told severely on an excitable system, and the "nerves of his brain"—scientifically speaking, the region round about the optic thalami—must pay the penalty. That "sharp knife" cutting, the "feverish tiredness in the limbs," and the sense of impending evil, are the very symptoms of megrim; the attacks of which, especially if brought on by mental labour, may sometimes be prolonged for several days by successive relapses. (Sept. 5th.)

"Only two lines: I mustn't write, because I can't; that's how things stand with me"; and after barely a dozen lines, "I can write no more. Goodbye." Three days later an equally short letter, so unusual in this correspondence, ends with "That's all I'm able to squeeze out to-day. Don't take it amiss!" (September 8th.)

On the same date a notable letter to Liszt about Raff, Berlioz, and new creations begins and ends as follows: "Unluckily I can't reply to you as I should wish. The nerves of my brain are so racked again that I have had to give up all writing and reading for a while—I might almost say, all mental existence. Every letter—even the briefest—knocks me terribly up, and nothing save the greatest quiet (where and when?) can—or rather, could—put me really right. ...... I can write no more now! Don't be cross with me! My head is nigh bursting! I'll just hurriedly add the warmest farewell I have in my heart." Another three days later: "My head is still bad and all my nerves upset, in consequence of this eternal friction with an invisible land outside. ...... Farewell, I must stretch myself full-length on the divan, to close my eyes" (to Uhlig, September 11th). Next day we have the letter to Roeckel cited a page or two back. A week after that: "I am growing accustomed to the ruin of my nerves; one can always do a little something with them still. ...... To-day is the federal fast-day and for the last week the Föhn has been enough to make one wish one's nerves at the devil." The Föhn is a moisture-laden south wind peculiar to the valleys and lakes of Switzerland, but similar in its general effects to the sirocco so prevalent at Venice, &c. Its humidity would really seem to have eased the writer, however, much as a vapour-bath might; for not only does he indulge once more in a good streak of his pristine humour in this letter of September 19th to Uhlig, but also has important news for us: "My condition isn't a hair's breadth better yet; only I'm gradually accustoming myself to a fresh degradation of my health; I'm accommodating myself to it, and even work a little hour a day now!"

Progress with the poem was by no means break-neck at first, "a little

FIG. 1.



RICHARD WAGNER (Lenbach).

(By the courtesy of Messrs. Dent and Co., the publishers of Chamberlain's "Richard Wagner.")

From the perpetual expression "the nerves of my brain" ("meine Gehirnnerven"), coupled with the apparent "robustness of body," I should argue [writes Ellis] that the malady was nothing deeper-seated than megrim, *alias* migraine or "sick-headache"; but anyone who has ever been a victim to that scourge, similar in many of its nervous symptoms to "influenza," will recognise the sheer impossibility of mental application when an attack is in full swing. The various forms of dieting, to which Wagner had subjected himself, would only tend to lower the general tone of the nerves, and thus exacerbate the malady. "You people musn't talk theory any more to me just now; it sends me clean crazy. The nerves of my brain!—there's the mischief. I've terribly assaulted them: it's quite possible I may yet go mad!" (August 9th, 1852.)

And so it goes on, with variations of the same complaint (chiefly addressed to Uhlig), at least until the *Rheingold* poem is completed and the greatest load thus discharged from his mind. At first, in fact, it is impossible even to think of poetry. "I've written Heine to-day. My head is not yet clear enough for working." (August 11th.)

"Unfortunately I'm getting on very slowly [with the *Tannhäuser* Guide], as all manner of work tries my head uncommonly just now." (August 14th.)

"If my head were but better! With that cursed brochure, which I hour a day." Nor even every day, for a fortnight later the intimation to Liszt runs: "My nerves are still none of the best, yet I have begun to work a short hour a day at my poem again, off and on." *(October 3rd.)*

"I shall tell you nothing about my work; it's going slowly, but well! Fare well and healthier than me. I shall shortly go crazy!" (Oct. 5th)—a repetition of the fear expressed two months ago. Before a week is out, the poem has to be laid aside. "That I am able to write y
my decision to make a forced
once more into that fatal condit

so inveterately bad I
excursion. Already I
Unfortunately, with t
shall have to abjure
keep up, mostly three
a hang-dog sort of plea

By no means is he out of the wood with his nerves, for he has to send apologies through Uhlig to another correspondent next day for

in
the
if I
ent
lett.

the alterna-
as possible;
top my work
ite a longish
, except in the

Valküre were finished,
joy; there is nothing
the *Rheingold* poem.

FIG. 2.

RICHARD WAGNER (Lenbach, 1874).
(Reproduced from Chamberlain's "Richard Wagner" by the courtesy of Messrs. Dent and Co.)

not answering at once. "That sort of letter always takes a deal out

Partly due to the fateful lesson of the work itself, the greater share of this lack of elation must be assigned to the same cause that had impeded the poem's progress: excessive nerve fatigue. The letter that announces the event to Uhlig—and a very long letter it is, as a rest is being taken—for the most part consists of reflections on death and diet:

the utmost comfort,
I'm assured by many
observe this diet, and
... Simple foodstuffs are not for such as you and me: we need the complex substances that offer the utmost nourishment with the smallest demand on the power of digestion. *Our rule should be to eat often, little and good, at the same time to avoid all great exertion,*

even in bodily movements, but be careful for comfort and agreeable rest." It is the valetudinarian's gospel; but, when the invalid happens to have such an "object in life" before him as the composition of a *Ring der Nibelungen*, it becomes his absolute duty to take care of himself for sake of the world.

The same complaint of nerve-fatigue that formed a running accompaniment to the *Rheingold* poem ushers in the revision of the two *Siegfrieds*: "I must stop; my head's getting bad." (November, 1852.)

Uninterrupted work has again strongly affected me and the nerves of my brain are so overwrought that even these few lines put me in a state of violent excitement, wherefore I must ask you not to be angry if I make them very short. (1852.)

I feel that I am still capable of doing good things but only by keeping very strict diet, and especially by frequently interrupting my work and entirely diverting my thoughts before going on again. (Ditto.)

The *Valkyrie*, the poem of which I finished on July 1st, I wrote in four weeks; if I had spent eight weeks over it I should now feel better. In future I must adopt this course. (Ditto.)

Unfortunately I cannot reply to your letter as I should like to do; the nerves of my brain are once more in a state of great suffering, and for some time I ought to give up all reading and writing, I might say all mental existence. Even the shortest letter wearies me terribly. ...... I only wish to explain to you why it is that to-day I must limit my communication to stating briefly what is absolutely necessary. ...... The work has been a perfect torture to me. This eternal communication by letter and print is terrible to me. (Ditto, September, 1852.)

I am going from bad to worse every day and lead an indescribably worthless life. ...... Perhaps you will soon be rid of me. (November, 1852.)

My terrible melancholy. (Ditto, January, 1853.)

In case I should die during the work. (Ditto, February, 1853.)

How long I shall endure this terrible joylessness I cannot tell. About the middle of last month I was on the point of succumbing and thought that I should soon have to follow my poor Uhlig. I was persuaded to call in a doctor, and he, a careful, considerate, and conscientious man, takes much trouble with me. He visits me nearly every other day and I cannot but approve of his treatment. Certain it is that if I do not recover it will not be *his* fault. ...... For me there is no salvation but *death*. Would that it found me in a storm at sea, not on a sick bed! (Ditto, Feb. 11th, 1853.)

I can only live in extremes—great activity and excitement and—most perfect calm. (March 4th, 1853.)

My nights are mostly sleepless. (March, 1853.)

Whether the cure has been of any use to me the future must show, but upon the whole I am not inclined to repeat it. (Ditto, at St. Moritz, July, 1853.)

The foolish man wants to hear something from me about his book, but as soon as I bend my head a little towards *theory* the nerves of my [illegible]. I feel quite ill. (Ditto.)

[illegible] men of our sort should not write at [illegible] nd have great difficulty in persuading myself that it must go on like this and that it would not really be more moral to put an end to this disgraceful kind of life. ...... To cure my sick brain the doctor has prevailed upon me to give up taking snuff altogether; for the last six days I have not taken a single pinch, which only he can appreciate who is himself as passionate a snuff-taker as I was. Only now I begin to perceive that snuff was the solitary real enjoyment that I had occasionally, and now I give that up too. (August, 1853.)

I am back again in Zürich, unwell, low-spirited, ready to die. ...... At Genoa I became ill, &c. (Ditto, September, 1853.)

I have many things to tell you but my head is burning. There is something wrong with me; and sometimes with lightning-like rapidity the thought flashes through me that it would be better after all if I died. (Ditto, December, 1853.)

Rheingold is done, but I also am done for. (Ditto, January, 1854.)

I went to this music with so much faith, so much joy; and with a true fury of despair I continued and have at last finished it. ...

With my terrible care my violent nervous disorder has also returned. ...... "With myself things are going from bad to worse each day; 'tis an indescribably good-for-nothing life I'm living! Of actual enjoyment of life I know absolutely nothing; to me the 'pleasure of life, of love' is purely a matter of imagination, not of experience. So my heart has had to pass into my brain and my life to become a mere artificial one; only as 'artist' can I still live; into the artist has my whole 'man' been resolved. If I take account of the wretched state now normal to me, I cannot but deem my nerves ruined; strange to say, however, these nerves do me the most wonderful service when put to it, when sufficiently fine incentives come to me; then I have a clearness of vision, a sense of pleasure in perceiving and creating, such as I never knew before. Ought I to call my nerves ruined then? I cannot. Only I see that—in the way my nature has developed—its normal state is exaltation, whereas the ordinary calm is abnormal to it."[1] (January, 1854.)

This having to make a clean-copy kills me. ...... The continual writing tires me to such an extent that I feel quite ill and lose the inclination for real work. (March, 1854.)

This dislike of work (composition) is the worst feature of all. I feel as if with it eternal night were closing around me. (May, 1855.)

My frequent nervous headaches. (Letter to Wesendonck from London, 1855.)

My mental disharmony is indescribable; sometimes I stare at my paper for days together,[2] without remembrance or thought or liking for my work. (Letter to Liszt, July, 1855.)

After much trouble the first half of the *Valkyrie*, including a clean copy, has got finished. ...... For the last week indisposition has prevented me from doing anything and if this goes on I almost doubt whether I shall be able to finish this work from the sketches. (Ditto.)

I am making a tentative effort to rise from the sick bed on which I have lain again exactly three weeks ...... I have suffered from continual attacks of erysipelas of the face. (December, 1855.)

I am again, or rather still, unwell and incapable of anything (January, 1856.)

I am continually at war with my health and fear a relapse at any time.

I am waiting to see what my health will do; my doctor wants to send me to some watering-place, but to this I will not, and cannot, agree. (Ditto, during 1856.)

Again on a sick bed. To-day I am scarcely recovered and fear another relapse. ...... If I could only be well again!" ...... Another attack of erysipelas. ...... This abominable illness has brought me very low ...... The slightest disorder of my stomach immediately affects my complaint. (Ditto.)

In that terrible month of May I was able only to look at your scores with a tired eye and as through dark clouds.

My only care now is the perfect recovery of my health.

God knows I castigate my flesh by this cure ...... placed myself under Dr. Vaillant who conducts a hydropathic establishment here. ...... I feel sure of being completely cured of my ailment which, after all, was caused by nervousness. ...... During my cure I must not think of doing any work. (July, 1856.)

My catarrh has developed so that I may hope it will rid me of my usual winter illness. My health, too, is once more so bad that for ten days after I had finished the sketch for the first act of *Siegfried*. I was literally not able to write a single bar without being driven away from my work by a most alarming headache. Every morning I sit down, stare at the paper, and am glad enough when I get as far as reading Walter Scott. The fact is I have once more overtaxed myself, and how am I to recover my strength? With *Rheingold* I got on well enough but the *Valkyrie* caused me much pain. At present my nervous system resembles a pianoforte very much out of tune. (January, 1857.)

Imagine that for a week and a half I have not been able to move from my chair. This illness was just what was required to finish me up. I had just resumed my work a little after a gastric and nervous indisposition, when I was obliged to give in again. (December, 1858.)

The weather is bad; I am absolutely alone and seldom in the right mood for work. So I drag on amidst mists and moods.

My health still gives me much trouble.

My health is ruined for want of life and action.

The last act of this child of sorrow (*Tristan*) is now on the verge of "to be or not to be"; a slight pressure of some spring of the vulgar fate, at whose mercy I am, might kill this child at the very moment of its birth. Everything with me depends now upon the turning of a hand; there may be a way and there may be a stoppage, for I, my Franz, am in a bad way. ...... How miserably weak I feel as a musician. I know in my heart that I am an absolute blunderer. You ought to watch me when I am at it; now thinking "it must do after all," then going to the piano to puzzle out some wretched rubbish and giving it up in a state of idiocy. (Ditto, 1859.)

I feel as if I should break down in sight of the goal. Once at least every day I look at my book (*Tristan*) with a right good will, but my head is waste, my heart empty, and I stare at the mist and the rain clouds, which, ever since I have been here, have debarred me even from the chance of shaking up my stagnant blood by pleasant exertions ...... work alone is to help me, but who is to help me to the possibility of work? (Ditto, 1859.)

I have been severely ill these four weeks and my recovery is scarcely noticeable. I am still extremely weak. ...... I begin to perspire, and can write no more. (1859 *passim*.)

I am very slowly regaining my strength. What impedes my recovery, and indeed makes it impossible for the present, are the extraordinary exertions and excitements to which I have to expose my health, which is gradually coming back to me. ...... The proofs of *Rheingold*, which Messrs. Schott would have liked so much to have published at Christmas, have been lying on my table for seven weeks without my being able to make any progress with them. (Letter to Liszt, 1860.)

I seek rest and happiness no longer, but only breathing-space for new labours, from which *I* reap the least enjoyment. (Letters to M. v. M., 1860.)

His exertions brought on a serious illness which threatened to develop into brain fever. (Ellis, 1860.)

[illegible], the doctor's orders, with all kinds of [illegible] to Wesendonck, 1860.)

[illegible] s. (Ditto.)

A night slept through from 1 to 8 A.M. is an ideal happiness to me which I only taste as an utter rarity. (Ditto, 1861.)

...... travelled to the South of France by his doctor's advice. (Ditto, 1865.)

A doctor, whom I have consulted, recommends me Cannes. (Letter to E. W., 1864.)

I was hindered by terrible sickness from continuing my journey that day. (Ditto, 1861.)

"People often call me irascible when I am simply ill," he used to say. (Fink.)

From 1866 to 1872 at Triebschen Wagner displayed a creative activity which was simply incredible. ...... Happiness has no history. The six years at Triebschen were the happiest of his whole life. (Chamberlain.)

Truly all our politics, diplomacy, ambition, feebleness, science—unfortunately too all our modern art—all these parasitic growths upon our life have no other soil upon which they flourish than our ruined stomachs. [He seems to have thought vegetarianism "the key-stone of regeneration."] We must abstain from meat and alcoholic drinks. [Only adopted for a while.] (Letter to Liszt.)

I shall devote next summer to nothing but the possible recruiting of my health—for which, on account of the wearing and increasing pains in my abdomen, I think of taking a very protracted course of waters at Marienbad and so on. If I find myself restored to health ...... In one of my perpetually sleepless nights I have tried to gain a little ease. (Letters to Heckel, 1876, p. 99.)

In 1878 a medical examination showed amyloid degeneration of the liver, spleen, and kidneys. (Ellis.)

I am at the commencement of a course of waters, which may be very prolonged. (To Heckel, 1879, p. 118.) He had "a serious illness" in 1880. [Serious organic diseases at this time having set in.]

Only to-day do I write you, as this mournful business had to be postponed because my health is such that my dear wife was afraid even to impart to me the news of the sudden death of your father. (Ditto, 1882, p. 127.)

During the last few months there was much dyspnœa, especially after meals, but he was also busy writing several hours every morning. (Ellis.)

---

[1] Compare this with the experience of Carlyle (vide p. 70 of Biographic Clinics) who in the same way and from the same reason had to work "in a red-hot element," "with his heart's blood in a state of fevered tension," &c.

[2] Compare similar expression by Carlyle.

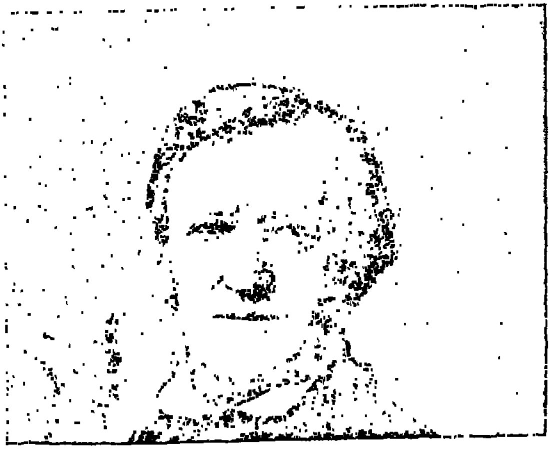
He died Feb. 13th, 1883. The necropsy showed a much dilated stomach, internal inguinal hernia, much dilated heart with fatty degeneration.) Death occurred directly from rupture of the right ventricle.[3]

Headache, "sick headache," "dyspepsia," "nervousness," melancholy, insomnia, indescribable suffering—these were some of the more prominent symptoms that, in various mixtures, rendered so miserable the lives of de Quincey, Carlyle, Darwin, Huxley, Browning, Spencer, and Parkman. Some of them had some of the symptoms all of the time, some had all of them some of the time. Wagner had all of them all of the time. All of them found these symptoms exactly proportioned to the amount of reading and writing that was attempted, and when the eyes were driven to their unphysiological function the symptoms increased in intensity until life itself was threatened either by the disease or by the despair of the patient. Darwin and Wagner kept up the sad belief in the therapeutic uses of hydropathy all their lives. Carlyle and Parkman tried it, but soon perceived the folly of it. Every one of the eight learned that the only cure or relief to be found consisted in stopping reading and writing—i.e., in the non-use of the eyes at near range, and in out-of-door exercise.[4] In addition to all the affections mentioned, Wagner had the mercuric artistic temperament, endured the bitterest mental anguish from the non-recognition and hate of his musical works, and he was poor. He also suffered all his life from an intercurrent affection, erysipelas, which is a disease dependent upon denutrition. There can be nothing in medicine more certain than that eyestrain causes denutrition, and nothing more certain than that Wagner had terrible eyestrain.

It should be noted that Wagner was a "delicate boy," "a pale slim little chap," needing to "pick up strength," not profiting by instruction, liking others to read to him, "preferred rambling," "roaming about the country," an excitable and fitful sleeper, shouting and talking in his sleep, &c. But the intellectual and keen mind soon realised the sense of responsibility, and the boy picks up his school work equal to the best from his ninth to his fourteenth year, but at 25 years of age his features have "the look of wanness and suffering." All of this is an excellent description of children who suffer from eyestrain and can be duplicated from the case records of ophthalmologists many times.

At about 30 years of age an excess of writing work overtaxed his nerves so much that he "often sat down and wept for a quarter of an hour at a stretch" and he was a constant victim of a feeble stomach. At this time an extreme amount of work with his pen brought on the idea of sudden death which in the same circumstances reappeared many times during his life and threatened to drive him to suicide. The medical man warned him against work, fearing the "determination of blood to the head," and ordered leaves of absence for three months, &c.[5]

FIG. 3.



RICHARD WAGNER.

(From Rubenstein's arrangement of the vocal score of *Tannhauser.*) This photograph probably formed the basis of Lenbach's realistic drawing.

[illegible] a long life of work. I am very sensitive and irritable, quickly becoming feverish and despairing, but never really ill, and [illegible] s." This [illegible] his eyes [illegible] plaint, in [illegible] find in his biographical reading constant proofs of the rôle of eyestrain which have hitherto escaped notice. For instance, of Adolf, the uncle of Richard Wagner, a man devoted to literary work, I find the following suggestive paragraph: "His bodily strength now commencing to fail with the advent of maladies brought on by the sedentariness of his occupation, Adolf resumed his favourite exercise of old, long walks, which he did not abandon until a year or so before his death." "For a year and a half or

[illegible] who [illegible] was the [illegible] of the [illegible] whose life

With each increment of added accommodation-failure things go from bad to worse every year, until at the age of 35 years Wagner feels "too old" for undertaking his greatest art-work. Depression and suffering, "brokendownness," always follow near work and especially so in winter, his "mortal enemy," when vitality was always lowered, because there was more confinement in the house and hence more reading and writing. A hundred statements grow ever clearer and clearer that writing and reading are becoming more and more impossible, produce greater and greater suffering, and that after each opera, poem, or literary work the ill-health is more tragical. He cannot even undertake "to make a copy"; music-writing is "natural and easy" and yet at the very beginning of such labour he is warned that he will undermine his health. Finally, "the nerves of his brain are so overwrought that the writing is reduced to two hours a day, instead of five or six as formerly, and the writing of a few lines of a letter sets him in violent commotion." As all ophthalmologists instruct their patients, so Wagner found by experience that he had often frequently to interrupt even his two hours a day of eye-work. Every job of composition or writing "takes much out of him" and he has "to rest it off." Headache, sleeplessness, the "working by spurts," "with long interruptions," a hundred such expressions occur, and the fear of death, the longing for it, or the resolve to seek it, is constantly reappearing. Hundreds of such expressions as the following could be gathered: "If my head were but better"; "I shall go mad"; "the sharp knife cutting into the nerves of my brain"; "feverishly tired in all my limbs"; "even this letter almost knocks me down"; "I *mustn't* write, because I can't"; "my head is nigh bursting"; "every letter knocks me terribly up"; "the nerves of my brain are so racked that I have had to give up all writing and reading for awhile"; "I even work a *little* hour a day now"; "a short hour a day now off and on"; "I shall shortly go crazy"; "letter-writing, I am now convinced once for all, severely taxes me, and you therefore may flatter yourself if I manage to fill even this sheet of paper"; "completed my work very much exhausted"; "from noon till bedtime I never write another line"; "writing a longish letter prevents all other work that day"; "I must stop, my head's getting bad"; "even these few lines put me in a state of violent excitement"; "I ought to give up all reading and writing"; "even the shortest letter wearies me terribly"; "my work has been a perfect torture to me"; "this eternal communication by letter and print is terrible to me"; "my terrible melancholy"; "my nights are mostly sleepless"; "as soon as I bend my head toward theory the nerves of my brain begin to ache violently and I feel quite ill"; "truly writing is misery, and men of our sort should not write at all"; "the *Rheingold* is done, but I also am done for"; "this having to make a clean copy kills me"; "I begin to perspire and can write no more"; "the proofs are lying on my table for seven weeks"; "farewell, I must stretch myself full length on the divan and close my eyes." This poor patient may be excused for not recognising the simplest conclusion that the eyes were at the bottom of all this suffering. With difficulty, however, may the medical men of his day be excused, and there is no excuse for the most cruel of crimes, the brutal obstinacy which to-day makes a few ultra conservative physicians, and even some careless ophthalmologists, deny that such symptoms in thousands of patients are due to eyestrain and are daily cured by its correction.

Even to-day men are wet-packed, as Wagner and Darwin were all their lives, for astigmatism. The silly superstition that there is any mysterious virtue in cold water has been, and is still, filling the pockets of quacks and exhausting the vitality of numberless patients. Let one with open mind read the hydropathic histories of Darwin and Wagner and not have his gorge rise with indignation. The sole good done by this nonsense, to offset the enormous, evil was that while shivering in dripping sheets the poor eyes and brain could not be doing reading and writing. Hence the little seeming good, the raised hopes, and the succeeding despair when ocular strain was again resumed.

Wagner's clearest symptom was "sick headache"; migraine, megrim, hemicrania, nervous headache or bilious headache are other names for this terrible affliction. It causes a large number of other symptoms and is itself of an infinitely varied type, according to the kind of near work required and the kind of organism of the patient. I have had thousands of patients with this disease and 99 out of every 100 were cured by spectacles. That sick headaches often disappear at the age of from 50 to 60 years is due solely to the fact that presbyopia makes eye-strain impossible. That the wrecked nervous system may sometimes go on exhibiting the symptoms after the exciting and direct cause has ceased is a truism not only of medicine but of common sense. "From 1871 onwards he had an immense amount of business to transact," writes Mr. Ellis to me, "in connexion with the building of the Bayreuth theatre, &c., but of specific complaint of headache I nowhere find a trace in the later years." All the symptoms of Wagner's functional diseases ended with the establishment of presbyopia. The sick headaches, the melancholy, the fear of death, the resolve to commit suicide, the nervousness and the insomnia ended then, not because the King of Bavaria came to the rescue of this greatest of musical geniuses, not because the wrong wife went and the right one came, not because success and popularity arrived, but because his wife acted as amanuensis, &c., and therefore he was not driven to the maddening eye-labour, and because presbyopia prevented the suffering which was the result of the least of such labour. One eye at last went out of function and this helped also to establish relief.

In Wagner's warrant he is described as "wearing glasses." Outside of that simple statement none ever seems to have seen him doing so or to have spoken of the fact. Mr. Ellis has proof that seems to him pretty good that he did not wear them. It is of no consequence whatever. Any spectacles he could get would not have neutralised his eyestrain. Were he living to-day he would in all probability not find any ophthalmologist or physician in Germany that would help him or care to help him in the one possible and effective way. There are a hundred ophthalmologists, nerve specialists, and general physicians, even in the United States, who would smile scornfully at the idea that a patient having Wagner's symptoms could be cured by the correction of his ametropia. Fortunately, there are hundreds of others who know the truth, and better, who practise it.

All through the latter part of Wagner's life he had one symptom, one of those which physicians call "objective," one that is alluded to, so far as I know, by no written word. In speaking to a great musician who knew Wagner, I mentioned this symptom, when he broke in with, "Of course! I had often observed the fact, but thought nothing of it." This symptom, which all of his physicians also ignored, comes out in most of the later photographs and the portraits, especially in those of Lenbach the realistic painter. The left eye is turned out and up. (Consult the portraits herewith reproduced.) Some American ophthalmologists call this defect "hyperexophoria." In the effort to drag the eyelid away from, and above, the pupil of this eye, it will be noticed that the forehead is arched and wrinkled in concentric curves—an appearance noticed in many such patients. In the pictures in early life this combination of heterophoria and strabismus is not shown because it did not exist. It had been overcome by strain, if it existed, and the strain had produced its effect.[6] Some of the later photographs do not show the outward and upward turning of the eye, a fact that demonstrates the temporary ability to overcome it by intense effort of "fixation" or concentration of the attention. This turning of the left eye upward and outward is, as ophthalmologists know, a result of ametropia and especially of astigmatism and anisometropia. It was a relief of eyestrain, an effect rather than the cause of it—a fact that the "graduated tenotomists," the cutters and snippers of eye muscles, forget.

A bungling newspaper headline of a review was *The Eye of Genius*—as if geniuses had a peculiar sort of eye defect. The geniuses are few, the slaves of civilisation millions. Even Wagner and Carlyle and de Quincy, as poor as they were, could stop near-range ocular work when they were compelled to do so or limit it to "a little hour" a day. Sewing-women,

---

same cause. In his melancholy and suffering his greatest danger had been suicide. Great nerve specialists had drugged him to stupor or had "rested" him nearly to death. Luckily he escaped the hydropathist and Christian Scientists. On this same day I also received bitter criticism from a great ophthalmic surgeon that I am an exaggerator and hobby-rider. A great rest-cure man does not even acknowledge the receipt of a complimentary copy of "Biographic Clinics." And so on.

[6] Even in th [illegible] ılar defect is not always shown, chiefly, [illegible] by intense effort to overcome it and to s [illegible] n a letter to Dr. Pusinelli, Wagner says that the constraint and mechanical preparations for being photographed rendered it very difficult to procure a faithful likeness of his "so changeable expression." Whether "fixing" with both eyes or with but one would make a great difference in the expression. The vertical wrinkles between the eyes are also proof of eyestrain.

typewriters, clerks, many students, teachers, all poor handi craftsmen and women cannot ,
or ten hours every day and
defects as the ' geniuses '
fore greater than to the geniuses There is no greater cruelty, no greater crime against humanity than this of non recognition and scorn of eyestrain

This evidence presented by the portrait painter and the photographer of Wagner would not be needed by the expert ophthalmologist to prove the fact of the cause of his lifetime of awful misery It adds the demonstration needed to convince general physicians and intelligent laymen Many thousands of such non medical persons who have been cured of appalling sufferings like those endured by Wagner would not need such a proof The mere reading of the list of quotations I have gathered would make them shudder to think of their own past experience Multitudes of others still await the finger of a divine science upon their eyes But that touch must first come to the eyes of physicians, too many of them still blind by prejudice and tradition

Philadelphia U S A

THE ESTIMATION OF FREE HYDROCHLORIC ACID IN THE GASTRIC CONTENTS

BY C E HAM, M B LOND ,
AND
J J R. MACLEOD, M B ABERD
(*From the Chemical Laboratory of the Pathological Institute, London Hospital*)

IN 1889 F A Hoffmann[1] described a method for the estimation of uncombined hydrochloric acid in the gastric contents This method depends on the catalytic power of the free acid in producing inversion of cane sugar, and was undertaken on the suggestion of Professor W A Ostwald Hoffmann published some further papers[2] on his application of the method to gastric contents, but otherwise it does not seem to have been employed for this purpose O Cohnheim[3] in 1896 also used the method to determine the combining powers of proteoses and peptones for hydrochloric acid. As the other methods employed in clinical medicine for the *estimation* of the free hydrochloric acid are very inaccurate for small quantities of undiluted gastric juice and are, moreover, very difficult of application, we thought that it might be of service to repeat Hoffmann s work and to see whether the method could not be so far simplified as to make it applicable for clinical workers without at the same time affecting its accuracy Before recording our results we had hoped to obtain records of the analyses of vomits from various gastric diseases, but owing to our having to suspend the work for some time we have thought it desirable to publish our experiences with the *method* at present the more especially since we have found that it can be materially simplified without affecting its accuracy We hope that it may prove useful in the hands of clinical workers

THE PRINCIPLE OF THE METHOD

The rapidity of the inversion of cane sugar by free acid is proportional to the amount of the free acid present By comparing, therefore, the amount of inversion produced in a cane sugar solution by adding gastric juice to it with the amount of inversion produced in a cane sugar solution containing a known amount of free HCl—both solutions being incubated at the same temperature and for the same length of time—we can accurately determine the amount of *free* HCl in the gastric juice[4]

To measure *accurately* the amount of free acid in the unknown solution by comparing it with a known solution all the conditions which influence such a chemical reaction must be constant in the two solutions As this is difficult to attain, advantage is taken of Wilhelmy s law for the course of such reactions Expressed in common logarithms this law may be expressed by the following formula $C = \log A - \log (A - x)$, where C = a constant representing the relative catalytic power—i e., the nature and quantity—of acid present, A = the amount of cane sugar originally present, and x = the amount of cane sugar which has undergone inversion in a given time

With regard to A, the quantity of sugar contained in an optically active solution is proportional to the angle through which the plane of polarised light is rotated Therefore the total number of degrees through which cane sugar when completely inverted changes in rotation is directly proportional to the amount of sugar which the solution contains, or, in other words, A = the total number of degrees through which change of rotation takes place on complete inversion The value of A could therefore be found by allowing a solution of cane sugar of known dextro rotatory power to incubate at a certain temperature in the presence of a strong acid until it was completely inverted and then noting how much laevo rotation was produced A would thus equal the amount of rotation of the cane sugar solution before inversion plus the number of degrees of lævo-rotation after inversion This process, however, would be tedious and, according to Hoffmann A can be more easily obtained by multiplying the initial number of degrees which the cane sugar solution is capable of rotating polarised light to the right by 0 4416 for 0° C , and for every degree Centigrade above 0° 0 00506 must be subtracted from that factor, the product of this being the amount of lævo rotation which would be produced by complete inversion. The original dextro rotation plus this figure gives the total rotation and represents the value of A We have made several experiments to test the reliability of this factor and have found it to be perfectly accurate. In the same way x is proportional to the difference of the rotatory number at the beginning and end of the experiment—e g , a certain solution had a dextro rotatory power of 50 before inversion, and after inversion this was 45, then $x = 5$

From the above data we are thus able to find the value of C by substituting the values of logs of A and $A - x$ in equation

$$C = \log A - \log (A - x)$$

Now let us suppose that C represents the constant for the solution containing the unknown value of HCl. Then in order to find out the amount of free HCl in the gastric juice (which is the unknown solution) we must compare it with the constant which we will call C', of a solution of cane sugar to which a known quantity of the same acid—viz , HCl—has been added, and by incubating both solutions at the same temperature and for the same time the relation of C to C' must correspond to the *amount* of acid present. Suppose d = the amount of acid present in the known solution then the amount of acid present in the unknown solution can be easily found by the following simple formula ,

$$A = \frac{C}{C'} \ d \quad (A = \text{HCl in the unknown solution})$$

The method as employed by us is as follows The stomach contents are removed by passing a stomach tube two hours after a breakfast consisting of two eggs two cups of coffee, two pieces of toast and a large slice of bread and butter (We chose this meal as it approached the normal more nearly than one of the test breakfasts usually given in clinical investigations) The gastric contents, undiluted with water, are heated to near boiling point in order to destroy the pepsin , otherwise proteolytic digestion would proceed during the incubation which follows and the resulting proteoses and peptones combine with the free HCl, since as Cohnheim[5] has shown the combining powers of these is markedly stronger than is that of less hydrolysed—e g native—proteids The vomit is then allowed to cool and is quickly filtered through an ash free filter paper, the ash of ordinary paper being capable of taking up some of the free HCl.[6] If dark in colour charcoal must not be used to decolourise the vomit, for it readily absorbs the free HCl.[7] Portions of the filtered vomit measuring five cubic centimetres each are then placed in four small Erlenmeyer's flasks (100 cubic centimetres capacity). To three of these are added 10 cubic centimetres of a saturated solution of cane sugar[8] and to one of them, also, a crystal of sodium acetate. The sodium acetate is added to absorb the free HCl, this preparation serving as a control for the detection of other inversive agencies in the vomit. All the four solutions are diluted with water to 20 cubic centimetres. The fourth flask, containing only five cubic centimetres vomit and 15 cubic centimetres water, serves as a control for any inversion of maltose which might take place. To a fifth flask are added a known quantity of $\frac{N}{100}$ HCl and 10 cubic centimetres cane-sugar solution. Its volume is likewise brought up to 20 cubic centimetres. The rotatory power of each of the solutions is then measured. For this purpose we have used a saccharimeter manufactured by Schmidt and Haensch and graduated so that 100 divisions of the scale correspond to a cane-sugar solution containing 26·048 grammes of sugar per 100 cubic centimetres and examined in a tube 200 millimetres in length (Ventzke scale). Any other scale will, however, serve equally well provided that for each determination the same scale is employed. The same applies to the tube which may be of any length provided the same tube is always employed. The scale should read to one-tenth of a degree. The solutions are then incubated at 37° C. for about 24 hours. We employ this temperature as at higher ones (as employed by Hoffmann) it is most probable that a certain amount of dissociation of HCl takes place from its combination with proteid,[9] thus rendering the results for free HCl too high. The solutions after incubation are quickly cooled so as to stop further inversion and are again examined in the saccharimeter. We have taken our saccharimetric readings always at a temperature of 15° C., at which the factor for finding the value of A is 0·3657.

---

[1] reien Salzsäure im Magensaft No 46

[2] o im Magensaft Centralblatt für Klinische Medicin 1890 No 29 Also Schmidt's Jahrbücher Band 233 S 263

[3] Zeitschrift für Biologie Band 33 S 493

[4] This action of free HCl in inverting cane sugar is due to its being a catalytic agent and it will accelerate a large number of other chemical processes in virtue of this power Cane sugar is chosen as the body for the HCl to act on because of the ease with which the chemical change can be measured A solution of cane sugar rotates the plane of polarised light to the right the amount of rotation depending on inversion, ore rotates t to that —dually gets less and less as the HCl acts on it and if left long enough it ultimately becomes lævo-rotatory

[5] Zeitschrift für Biologie, Band xxxiii S 43.

To make the method of calculation clear we will give an actual determination in detail. (The stomach contents in this case were somewhat diluted with water, a glass of water having been taken just before the stomach-tube was inserted). The following solutions were prepared: (*a*) five cubic centimetres of vomit, 10 cubic centimetres of cane-sugar solution, and five cubic centimetres of water. Rotation at beginning + 34·9; at end[10] + 30·5. (a^1) Same as (*a*) (to serve as control). Rotation at beginning + 34·65; at end + 30·2. (*b*) Same with crystal of sodium acetate. Rotation at beginning + 35·0; at end + 35·0. (*c*) Five cubic centimetres $\frac{N}{100}$ HCl, 10 cubic centimetres of cane-sugar solution, and five cubic centimetres of water. Rotation at beginning + 34·9; at end + 26·0. (*d*) 10 cubic centimetres of gastric juice and 10 cubic centimetres of water. Rotation at beginning + 2·5; at end + 2·6. Since there is no inversion either in (*b*) or (*d*) we may proceed at once with the calculation.

$$C = \log.\ A - \log.\ (A - x)$$

$$\begin{aligned} A &= 34{\cdot}9 \times 0{\cdot}3657 = 12{\cdot}763 + 34{\cdot}9 = 47{\cdot}66 \\ x &= 34{\cdot}9 - 30{\cdot}5 = 4{\cdot}4 \text{ and} \\ (A - x) &= 47{\cdot}66 - 4{\cdot}4 = 43{\cdot}26 \end{aligned}$$

The common logarithm of 47·66 = 2·6781
and of 43·26 = 2·6361

$$\therefore\ C = 2{\cdot}6781 - 2{\cdot}6361 = 0{\cdot}0420$$

We must now find the value of C'.

In this case:

$$\begin{aligned} A' &= 34{\cdot}9 \times 0{\cdot}3657 = 12{\cdot}763 + 34{\cdot}9 = 47{\cdot}66 \\ x' &= 34{\cdot}9 - 26 = 8{\cdot}9 \text{ and} \\ (A' - x') &= 47{\cdot}6 - 8{\cdot}9 = 38{\cdot}7 \end{aligned}$$

The common logarithm of 47·66 = 2·6781
and of 38·7 = 2·5877

$$\therefore\ C' = 2{\cdot}6781 - 2{\cdot}5877 = 0{\cdot}0904$$

The amount of acid in (*c*) is five cubic centimetres $\frac{N}{100}$ HCl, which equals 0·001825 gr. HCl.

∴ The amount of acid in the vomit is

$$\frac{0{\cdot}001825 \times 0{\cdot}0420}{0{\cdot}0904} = 0{\cdot}000847 \text{ gr. or } 0{\cdot}01694 \text{ per cent.}$$

This calculation, although at first sight it may seem laborious, really takes very little time provided one can make use of the logarithmic tables. We have, however, found that an *approximate calculation* can be made by a very much simpler method. To use this simpler calculation it is necessary that the original rotatory power of all the solutions be as nearly as possible the same and, of course, that they be incubated for exactly the same period of time. The amount of HCl in the vomit can then be obtained by multiplying the number of degrees of inversion—i.e., x—of the unknown solution by the amount of acid which is contained in the known one and dividing the product by the amount of inversion produced in the known solution. Thus, taking the above example, inversion produced in unknown solution = 4·4; inversion produced in known solution (containing 0·001825 gr. HCl) = 8·9.

$$\therefore\ \frac{4{\cdot}4 \times 0{\cdot}001825}{8\ 9} = 0{\cdot}00090, \text{ or } 0{\cdot}0018 \text{ per cent.}$$

The following figures will show the approximate accuracy of this simpler method:—

Free HCl contained in 100 parts Vomit.

I.—By Hoffmann's method.	II.—By simple equation.
0·0518	0·052
0·058	0 056
0·086	0 090
0 050	0 040
0·066	0·061
0·017 (diluted juice).	0 018

Proofs of the accuracy and delicacy of the method.—The inversion test is a very delicate one for the detection of free HCl. In this respect it is even more delicate than the ordinarily used colour tests. The following table gives the results of one of the experiments we carried out to demonstrate this:—

Amount of HCl in 20 cubic centimetres.	Inversion test.	Gunzburg's test.	Di methyl amido azo-benzol.
0·000365 gr.	Measurable rotation in 24 hours at 60° C.	Negative.	Negative.
0·00073 gr.	Well-marked rotation.	Very faint.	Faint.

The results depicted in this experiment we have obtained in a large number of controls. We see that the presence of about 1 part of HCl in 30,000 parts of water can be easily detected by the inversion test. At this dilution Günzburg's test gives only the very faintest result, the di-methyl-amido-azo-benzol test being, however, fairly distinct.

The HCl combined with proteid has no inversive action. As a quantitative test it is also very reliable as the following experiments show. Five small flasks were taken and there were put into (*a*) 10 cubic centimetres of cane sugar + 5 cubic centimetres of gastric juice and made up to 21 cubic centimetres by adding + 5 H_2O; (*b*) 10 cubic centimetres of cane sugar +

---

[6] Thus 20 cubic centimetres $\frac{N}{100}$ HCl required for neutralisation 16 8 cubic centimet [illegible] NaOH. When an ordinary filter paper (of 11 [illegible] placed in the 20 cubic centimetres of acid, [illegible] of alkali were necessary.

[7] Thus even in the cold we have found that the purest charcoal obtainable—viz., that prepared from cane sugar—is capable of taking up over 70 per cent. of the free acid and that this acid cannot be removed from the charcoal even by boiling with water. The only way by which it could be displaced was by placing the charcoal in a wide combustion tube and passing superheated steam over it, this latter being then condensed in a condenser.

[8] By using strong cane-sugar solutions the value of x for the same strength of acid is greater than when weaker solutions are employed and the experimental error is correspondingly less.

[9] Another advantage of employing this temperatures is that practically no evaporation takes place. If higher temperature be employed it is necessary to make the solution up to the original volume before examining it at this stage.

[10] That is after incubation for one night at 37° C.

cubic centimetres of gastric juice + 6 cubic centimetres $\frac{N}{100}$ HCl, representing 0·00219 gr. HCl = 21 cubic centimetres; (c) 10 cubic centimetres of cane sugar + 5 cubic centimetres of gastric juice + crystal of sodium acetate + 6 cubic centimetres H_2O; (d) 10 cubic centimetres of cane sugar + 8 cubic centimetres $\frac{N}{100}$HCl, representing 0 00292 gr. HCl, + 3 cubic centimetres H_2O; and (e) 10 cubic centimetres of gastric juice + 11 cubic centimetres H_2O and a small quantity of $\frac{N}{100}$ HCl added (this latter flask was used in order to correct for maltose if necessary). In flask (a) the amount of free HCl as calculated by the formula is 0·00259 gr.; this amount represents the quantity in five cubic centimetres of gastric juice (the amount used in the experiment); therefore, one cubic centimetre of gastric juice will contain 0·000518 gr. HCl, the percentage being 0·0518. In flask (b) the amount of HCl was found to be 0·004655 gr.; this consists of the HCl in gastric juice, plus a known quantity which had been added—viz., 0·00219 gr. Therefore, the amount of acid in the five cubic centimetres of gastric juice is equivalent to 0·004655 —0·00219 = 0·002465 gr. Therefore, one cubic centimetre of gastric juice contains 0·000493 gr. of HCl, giving a percentage of 0·0493 as against 0·0518, making a difference of 0·0025 per cent. of HCl in the vomit in the two flasks. In a second experiment the results are even better. In flask (a) the amount of HCl in one cubic centimetre of gastric juice was calculated to be 0·00055 gr., while in flask (b), which contained as before a known quantity of HCl as well as the unknown quantity in the gastric juice, the amount of HCl present in one cubic centimetre of gastric juice was 0·00054 gr., the difference being 0·001 per cent. in the two estimations. A third control was done with liquor pepticus (Benger). The percentage of HCl in this was found to be 0 2282. In flask (b) it was calculated to be 0·212, giving a difference of 0·016 per cent. in the two cases.

The percentage of free HCl in the gastric contents two hours after a mixed diet we have found to be, on an average, about 0·06. The following table gives the results of some determinations by the method detailed above:—

C. E. H.	*J. J. R. M.*
0 066	0 059
0·086	0 055
0·058	0·048
0·049	0·060

It will be seen that the percentage is a remarkably constant one, at least in the two cases investigated.

In conclusion we may state that the method is a comparatively simple one and that it can easily be carried out with one of the simple polariscopes used for the estimation of sugar in urine.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

LARGE PIECE OF GLASS IMBEDDED IN THE ORBIT FOR 20 YEARS WITHOUT CAUSING SYMPTOMS; REMOVAL.

BY J. HOGGAN EWART, M.D. EDIN.

ON July 4th, 1903, a married woman consulted me about a small sinus situated about two centimetres above the inner canthus of her left eye. She stated that 20 years ago a clock fell on her head the glass of which broke and made a deep cut across, and to the outer side of, her left eyebrow. This was sewn up and with the exception of a slight pricking about eight years ago which quickly passed off and a puckering of the skin over [illegible] lid there were no symptoms [illegible] when the skin broke and there [illegible] On examining this small opening (only half a centimetre in diameter) with a probe I found that a large triangular piece of glass was deeply *imbedded transversely above the eye,* the apex, lying on the nasal bones, being easily felt under the skin on the right side of the nose, and the base on the left orbital plate and tarsus. I removed it the next day.

[illegible] mained in this position for 20 years without causing symptoms or damaging the eyeball, upon which it might easily have encroached, the edges being quite sharp. It was much cracked. I was therefore glad that after a trial with a pair of forceps I removed it digitally or it would most certainly have splintered and caused great trouble. My thanks are due to Mr. M. G. Yunge-Bateman who kindly administered the anæsthetic.

Folkestone.

FRACTURED CLAVICLE WITH OSSIFIC UNION IN UTERO.

BY E. SYDNEY HAWTHORNE, F.R.C.S., L.R.C.P. IREL.

IN THE LANCET of May 9th last, p. 1310, you published under the heading "Looking Back" a case of the above extracted from one of your former issues dated May, 1825. As it may prove of interest to your readers I ask the courtesy of your pages to publish a case which has recently come under my observation.

On April 1st the patient, a married woman, was delivered of a full-term child without any trouble and on examining the infant I observed a small tumour of the size of a walnut situated at the centre of the right clavicle. This proved to be hard, dense, and immoveable and gave apparently no pain on pressure. No crepitus was felt on *moving the arm and shoulder blade and there was no* limitation of movement. The structures surrounding it were freely moveable and the skin over it was perfectly normal in appearance. I diagnosed a fractured clavicle united with callus surrounding the broken ends of the bone. I have frequently examined the infant during the past three months. The tumour has become less in size owing to absorption of the excessive callus and it is now represented by a small hillock on the upper surface with a corresponding depression beneath due to the ends of the bones being tilted upwards and in almost perfect apposition—a condition usually found in greenstick fractures of the young. There was no history of injury to the mother during her period of pregnancy.

Mudgee, New South Wales.

NOTE ON A CASE OF BERI-BERI.

BY DR. JULIO M. ESCOVAR,

ARMY MEDICAL SERVICE OF THE REPUBLIC OF COLOMBIA; GENERAL SURGEON TO THE PANAMA ARMY.

THE patient was a man, aged 32 years, who had been in Chiriqui Gaol since Sept. 14th and was admitted into Santo Tomas Hospital on Oct. 29th, 1902. There was no family history of importance. His general health had always been good except for several attacks of ague that had left an enlarged spleen. There was no history of syphilis, lead poisoning, or arsenical poisoning. He took but little alcohol. The urine was acid and free from sugar and albumin. The patient said that the trouble began on Sept. 28th with shortness of breath on exertion and a general sense of feebleness which was more accentuated in the legs. A week later he could not stand or walk and had lost tactile sensibility in the soles of the feet. He had full control of his rectum and *bladder; his appetite was poor; and his pulse was 90,* regular, and compressible. The heart sounds were energetic and accompanied with a soft diastolic murmur which was to be heard in the right second intercostal space and was audible also in the neck. The temperature ranged between 36·8° and 37·2° C. Thermic and tactile sensibility was lost from the tips of the toes up to the knees and the plantar and patellar reflexes were abolished but not the cremasteric. Having no suitable apparatus at hand the neuro-muscular reactions to electricity were not explored. Hypodermic injections of sulphate of strychnia daily were ordered, starting with two milligrammes and adding two milligrammes every day to the previous dose until 16 milligrammes were reached on Nov. 6th. The patient became worse slowly, diarrhœa came on, and he died from exhaustion on the 14th.

At the post-mortem examination, 24 hours after death, there was some general rigor mortis, the lips and cheeks were intensely blue, and there was drop-foot, especially on the left side. The abdomen contained some four ounces of straw-coloured fluid. There were many old fibrous adhesions between the parietal peritoneum and the spleen and the liver, the latter having the appearance found in those who die from mitral stenosis. The weight of the spleen, which was of hard consistence, was 420 grammes. The kidneys and the remainder of the abdominal contents were normal. Nothing abnormal was found in the lungs and pleural cavities. There were three ounces of serous fluid in the pericardial sac; there were no pericardial adhesions. The heart had four milky patches distributed on the external aspect of the ventricles; its weight was 412 grammes. The thickness of the walls of the left ventricle was 32 millimetres; there were many adherent old white clots in both ventricles; but the endocardium, orifices, and valves were healthy. An incision was made from the gluteal ridge to the calf in the median posterior line of the left thigh, exposing the great sciatic nerve; the subcutaneous fat was scanty, the muscles had the ordinary appearance, and there was no congestion, discolouration, or change appreciable to the naked eye either in the nerve or in its sheath. The head and spinal canal were not opened.

Herewith I inclose for microscopical examination a specimen taken with every aseptic precaution from the left sciatic nerve near its bifurcation in the popliteal space.

Panama.

⁂ The specimen in question was examined microscopically by a member of our staff but did not exhibit any pathognomonic change.—ED. L.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Prœmium.

EAST LONDON HOSPITAL FOR CHILDREN.

FIVE CASES OF PURULENT PNEUMOCOCCIC ARTHRITIS IN CHILDREN.

(Under the care of Mr. L. A. DUNN, Mr. H. BETHAM ROBINSON, and Dr. H. MORLEY FLETCHER.)

FOR the notes of the cases we are indebted to Mr. Leonard S. Dudgeon, late pathologist to the hospital (now superintendent of the clinical laboratory at St. Thomas's Hospital), and Dr. W. P. S. Branson, pathologist to the hospital.

CASE 1.—A girl, aged five months, was admitted under the care of Mr. L. A. Dunn on Jan. 31st, 1903. Two weeks before admission she had "bronchitis," from which she had nearly recovered when, on Jan. 27th, she had a fit, at which time it was first observed that the left knee was flexed, swollen, and painful. The child was well-nourished and free from organic disease apart from the affection of the knee. The latter was swollen, red, hot, shiny, and freely fluctuating. The general condition was good, the fever was only moderate (from 100° to 102° F.), and the general appearance was not that of grave illness. The joint was opened by lateral incisions and a quantity of pus was evacuated. With the operation the fever fell and for five days the child seemed to be mending. Then followed a recurrence of the fever with marked cervical rigidity, on the strength of which the right tympanic membrane, which appeared to be inflamed, was punctured, but without discharge of pus or relief from the symptoms, and two days of persistent vomiting ended in death on the fourteenth day from the commencement of the illness.

Necropsy.—The post-mortem examination was made on Feb. 14th. The body was somewhat wasted; the left knee-joint was well drained, containing only a small quantity of thick reddish-yellow odourless pus, and there was no local disease of bone or bone marrow appreciable by the naked eye. There was no other evidence of disease except for a small quantity of thick yellow pus in the right middle ear.

Bacteriological examination.—At the operation upon the knee cultures were made from the pus upon various media and resulted in the growth of a delicate organism conforming in all cultural characteristics and morphology to the pneumococcus of Fraenkel. At the necropsy a culture was taken in a sterile glass syringe from the blood in the right ventricle and resulted in the growth of an organism in all respects identical with that found during life in the pus from the affected joint. Unfortunately no culture was made from the pus found in the middle ear.

CASE 2.—A boy, aged six years, was admitted under the care of Mr. H. Betham Robinson on March 23rd, 1903. The patient had been ill for three weeks with earache and subsequent otorrhœa, when on March 17th he complained of pain and swelling in the left knee-joint, followed on the next day by similar affections of the right hip and wrist. There was no history of rigor, convulsion, or any other symptom of note. The patient on admission appeared to be very ill and lay curled up in bed with all his joints flexed. He had a troublesome dry cough and was slightly delirious, though his fever was moderate. Nothing abnormal was to be discovered in the lungs or heart. The left knee-joint was in all respects similar to that of the patient in Case 1—swollen, red, hot, shiny, and fluctuating—while the right hip and wrist appeared to be in a less advanced state of inflammation, and this in the latter seemed not to involve the joint but to lie superficial to it. The urine was normal. The knee-joint was opened and a quantity of thin pus and flakes of fibrin were evacuated and a similar result attended the opening of the hip-joint. The swelling over the wrist was incised without result. Little benefit resulted from the operation, though the wounds progressed favourably. Fever continued high at night with morning remissions and with gradual loss of strength, but without specific complications; the child died from asthenia 20 days after the operation. No post-mortem examination was allowed. Pure cultures of the pneumococcus were obtained from the pus found in the joints.

CASE 3.—An infant, aged six months, was admitted under the care of Dr. H. Morley Fletcher on April 10th, 1903, with a history of tenderness and swelling of the right leg for eight days. On admission the child was found to be well nourished but acutely ill. The temperature was 103° F. The contents of the chest seemed to be normal and signs of disease were confined to the right leg which was diffusely swollen from the hip downward, semi-flexed at the knee, and very tender. Four days later the patient was much worse, the temperature was seldom below 102°, the right leg was more swollen, and fluctuation was to be obtained above the patella. In addition there was a small abscess over the proximal interphalangeal joint of the third finger of the right hand. Lateral incisions into the knee-joint set free a small quantity of deeply blood-stained pus, while yellow pus was obtained from the phalangeal arthritis. There was no relief from the operation and the patient died within 12 hours. No post-mortem examination could be obtained.

Bacteriological examination.—Films prepared from the pus in the joints and stained with the ordinary aniline dyes showed cocci, diplococci, and streptococci, while cultures yielded a pure growth of the pneumococcus.

CASE 4.—A boy, aged 14 months, was admitted under the care of Mr. Betham Robinson on April 21st, 1903. Three weeks before admission the patient underwent an attack which was pronounced to be pneumonia, since which he had been losing flesh without definite symptoms until one week before admission when the right elbow was observed to be swollen and tender. The child was pale and thin and suffered from slight fever. The right elbow-joint was swollen, red, very tender, and fluctuating, and there was some swelling in the anterior triangle of the neck on the left side; otherwise, as in the other cases, there was no sign of organic disease. The elbow-joint was opened on the day of admission and about an ounce of pale yellow, odourless pus was evacuated. On the next day, as there was difficulty in swallowing, the swelling in the neck was incised from the outside and a small quantity of thick yellow pus escaped. The patient improved, but on May 7th the right knee-joint was noticed to be swollen and fluctuating. Exploration with a needle yielded a negative result, but on incision of the joint about an ounce of clear fluid was evacuated and the joint cavity was found to be lined by a gelatinous false membrane which was easily separable by the finger. The patient now made an uninterrupted recovery and was sent to the convalescent home on June 4th

Bacteriological examination —It will be noticed that there were three separate incisions, each yielding a fluid of different character, moderately thick pus from the elbow, pus still thicker from the neck, and from the knee a clear fluid and a fibrinous membrane Culture tubes were inoculated with pus from the elbow and yielded on all the media employed a small growth in 24 hours One cubic centimetre of a 24 hour broth culture injected into the peritoneal cavity of a white mouse led to its death within 18 hours and films prepared from the heart's blood, spleen, and kidneys showed numbers of cocci, diplococci, and short chains in every specimen A pure culture of the pneumococcus was also obtained from the heart's blood and the spleen A coccus was cultivated from the abscess in the neck which in morphology and cultural characteristics resembled the staphylococcus albus, but it is to be regretted that a careful investigation of this organism was not undertaken No organisms could be seen in the film preparations from the membrane lining the knee joint and all cultures were sterile

CASE 5 —An infant, aged one year and nine months was admitted under the care of Mr Dunn on May 28th, 1903 Five weeks before admission the patient had measles, three weeks later flexion of the right hip joint was observed with tenderness on movement The patient was an ill-nourished and weakly child. The right hip joint was flexed and surrounded on all sides by a large fluctuating swelling to which an impulse was transmitted on coughing The temperature was found to be 100°F Elsewhere there was no sign of disease On incising the abscess a large quantity of greenish yellow odourless pus was evacuated from a cavity extending widely in all directions, notably downwards where it crossed the ischium and entered the ischio rectal fossa The hip-joint was disorganised and the head of the femur was dislocated upon the dorsum ilii.[1] In spite of the extent of the lesion the temperature fell after the operation and the child rapidly improved. On bacteriological examination the pus from the hip joint yielded a pure culture of the pneumococcus

Remarks by Mr DUDGEON and Dr BRANSON —The cases above recorded offer several points of interest In the first place they are, with one exception, cases of purulent arthritis in *infants*—in itself an uncommon condition, moreover, they stand out in sharp contrast with such cases as are due to the staphylococcus aureus, streptococcus, &c It has been our experience, and that of our predecessors that the pneumococcus practically monopolises the etiology of infective arthritis during infancy and about up to the end of the first hemi decade and the type of the disease is peculiar Except in the severest cases the constitutional symptoms do not keep pace with the extent of the local lesion and a baby whose knee joint is distended with pus may sleep and eat well, a condition inconceivable in the case of staphylococcal or streptococcal infections of so large a joint The fever is usually irregular and moderate, while the appetite survives and prevents extreme emaciation

The character of th[illegible] almost distinctive, t[illegible] complete absence of [illegible] pain, tenderness, and distension of the joint all point to an acute inflammatory process In none of the above cases was there any brawny swelling or œdema worth mentioning The disease is accompanied in most cases by an intense pallor which is best compared to that occurring in long-standing cases of empyema in children, which condition, it will be remembered, is almost invariably pneumococcal in origin

The variations in the character of the pus from such joints as these are of interest and probably of prognostic value In cases of moderate severity it is fairly thick, yellow, but with a distinct shade of green, odourless, and very prone to fibrin-formation and deposit of lymph, similar in fact, in every way to the common type of pus from the empyemata in children On either side of this type there occur varieties which appear to measure the intensity of the process at work Thus in Case 3 the pus was deeply blood stained, in Case 2 it was thin and to the naked eye resembled turbid serum, though microscopically loaded with pus cells The patients in both of these cases died, thereby confirming our belief in the ominous import of thin pus in pneu[illegible] commonly results On the other side of the type may be placed such conditions as that present in the knee joint of Case 4 where a gelatinous membrane, consisting of fibrin and pus cells, inclosed a clear fluid Whatever the antecedents of this condition it was at all events very chronic and comparatively harmless

The prognosis, if based upon these meagre statistics, would seem to be very grave, for three patients out of the five died No doubt the average mortality is not so high Herrick, however, obtained a mortality of 65 per cent. in the 52 cases which he collected from the literature. One patient of the five had been ill for a week with swollen joints before admission and it is reasonable to believe that his chances were prejudiced by this long delay But with all allowances it cannot be said that our experience tallies with that of those who consider the prognosis in cases of pneumococcal arthritis to be favourable

Treatment was carried out on accepted principles and the affected joints were drained from side to side It was generally found possible to remove the drainage tube on the third day, after which the discharge gradually abated Even in the worst cases the treatment of the local condition was fairly satisfactory and free from complication. In the one case where the patient had been discharged cured the mobility of the elbow joint, from which thick pus was obtained, was considerably diminished, the knee joint which contained the clear fluid and membrane above described, has escaped abnormal limitation of movement.

Bacteriology —In all these cases a complete bacteriological examination was made and in one case additional confirmation was gained by animal inoculation The organism stained by Gram's method and with the various aniline dyes A growth was obtained on a variety of media—viz, agar, bouillon, blood agar, glycerine agar, and blood serum In those cases in which it was tried no growth was obtained on gelatin (melting point about 24°C) We regret that the medium advised by His for the differentiation of the pneumococcus from the streptococcus was not employed The organism was found to be capsulated in the pus obtained from the infected joints and in two cases from the blood agar tubes The serum reaction was not attempted for the diagnosis of any of these cases

Pathology —It is a curious fact that there was no case of inflammation of any of the serous sacs or important viscera in any of our patients, although pneumococcal inflammation was proceeding actively in certain joint cavities, and when we consider how important a part the pneumococcus plays in the acute diseases of children the freedom of these five cases from all the common lesions of this organism must be admitted to be remarkable. There is, however, this to be remembered, that three of these five patients died, one of whom yielded the pneumococcus in pure culture from the heart's blood at the necropsy It is fair to say, therefore, that this child died from pneumococcic septicæmia The other two fatal cases lacked a post-mortem investigation, but we personally believe that the pneumococcus might have been cultivated from the heart blood in these cases also and that death occurred in them, as in the other, from septicæmia, in which event the absence of organic disease in the viscera is more intelligible.

The above belief is based upon investigations into the real cause of death in cases where necropsy reveals no more, perhaps, than an infinitesimal area of broncho pneumonia In a dozen cases of this kind the pneumococcus was obtained from the heart's blood, generally in pure culture, and similar results attended the examination of other varieties of pneumococcic infection—e g, lobar pneumonia, severe broncho pneumonia, meningitis, empyema, &c Even in patients dying with other lesions in themselves fatal, such as generalised tuberculosis, we have cultivated this organism from the heart's blood and are compelled to come to the conclusion that the pneumococcus plays an even more important part in the acute infections of children than is usually said and that a generalised infection of the blood by this organism is a fairly common event Whether this septicæmic condition attends fatal cases only is a question that awaits further investigations into the bacteriology of the blood during life

As regards the primary focus of infection, it will be recalled that one patient had suffered from an attack of "bronchitis" previously to the joint affection, a second an attack of otorrhœa, and a third one of "pneumonia." Assuming that these diagnoses were correct we have a possibly exciting cause for three out of the five cases. Netter, quoted by Muir and Ritchie, states that out of 46 cases of pneumococcic infection of children, otitis media was the primary lesion in 29, broncho-pneumonia in 12, meningitis in two, pneumonia in one, pericarditis in one, and pleurisy in one. No case of primary arthritis enters his list.

---

[1] [illegible] t appears to be most common in [illegible] so described by Fernet and Lorraine [illegible] is completely destroyed the surround[illegible] were disintegrated and marked with streaks of pus while the articular cartilages were disorganised only rough denuded bone remaining

The important and variable part played by the pneumococcus in children can be well illustrated by the following facts. During the last six months 15 cases of pleuritic effusion have supplied fluid for bacteriological examination at the East London Hospital. In 11 the pneumococcus was isolated in pure culture, in two the culture was sterile, and two gave a growth of staphylococcus albus. The pneumococcus was also obtained during that period from two cases of suppurative pericarditis, four cases of meningitis, and two of peritonitis. In many of these cases it is impossible to be certain of the primary lesion but probability inclines to the middle ear.

Cave, in an excellent monograph on this subject, found in a total of 31 cases an antecedent pneumonia as the cause in 28, a result widely differing from our own; but his cases were almost entirely confined to adults, while ours were all in young children. In two cases quoted by him in which the disease affected children a pneumonia followed the arthritis.

There was no suggestion of trauma in the cases under notice, a fact that eliminates a possible explanation, for it has long been known that injury to a joint, followed by inoculation elsewhere with the staphylococcus aureus, will in animals determine a suppurative arthritis of the injured joint. The same thing is true of the pneumococcus; indeed, arthritis has been produced by section of the sciatic nerve and subsequent inoculation with the pneumococcus, the inflammation affecting the joints of the injured limb. Cave found direct evidence of previous damage to the affected joint in ten of his 31 cases, but no doubt the greater age of the patients in his series increased their liability to injuries of the joint by comparison with the youthful subjects of this paper.

Our best thanks are due to Mr. Dunn, Dr. Morley Fletcher, and Mr. Betham Robinson for permission to make use of the above cases.

Bibliography.—Fernet and Lorraine (quoted by Herrick): Note sur un cas d'Infection Pneumococcique à Manifestations Articulaires et Méningées, Gazette des Hôpitaux, April 2nd, 1896. James B. Herrick: Pneumococcic Arthritis, American Journal of the Medical Sciences, July, 1902, vol. cxxiv., p. 32. Muir and Ritchie: Manual of Bacteriology, 1902, p. 197. E. J. Cave: Pneumococcic Arthritis, THE LANCET, Jan. 12th, 1901, p. 82. Leron: Les Arthrites à Pneumocoques, Paris, 1899. (This is the most valuable work on the subject.) Pfister: Jahrbuch fur Kinderheilkunde, April 5th, 1902.

Reviews and Notices of Books.

Tropical Diseases: A Manual of the Diseases of Warm Climates. By Sir PATRICK MANSON, K.C.M.G., M.D., LL.D. Aberd. 8vo, pp. 756. With 130 Illustrations and two Coloured Plates. New and revised edition. London: Cassell and Co., Limited. 1903. Price 10*s.* 6*d.*

SINCE the first edition of this work appeared in 1898 several reprints and two new editions have followed in quick succession. The necessity for these frequent issues is owing to the popularity of Sir Patrick Manson's book and to the rapid changes which have taken place during the past five years in tropical pathology. The text is arranged under seven sections apportioned into 45 chapters.

Section I. deals with Fevers, among which malaria occupies the most prominent place. There are several noticeable changes in this part of the work. The term "plasmodium" is definitely set aside as being a scientifically inaccurate nomenclature for the malaria hæmamœba; the anatomy of the mosquito is more minutely described and illustrated; the methods of staining malarial blood have been improved of late although they are all modifications of the original Romanowsky's method; and the hæmocytozoa of animals according to Laveran's grouping are shortly considered. The most noticeable feature in this section is the general tone of confidence adopted concerning the mosquito theory of malaria which, but a few years ago, was put forward in the first edition of this book as an unproved suggestion. The theory so well enunciated by Sir Patrick Manson in 1894 has now passed from mere conjecture and has become an accomplished fact. Under Section I. is included Trypanosomiasis, which as a disease affecting man has only been definitely known since September, 1902, when Forde published his case of anomalous fever, mentioning that he had found a parasite in the blood which was recognised by Everett Dutton as a trypanosoma. Spotted fever, a disease met with in the districts of Montana and Idaho, U.S.A., is also included amongst the fevers for the first time. In Chapter XX. are discussed "unclassed fevers of the tropics"; their number and variety offer a fruitful field for investigation and no doubt in the near future several of these ill-understood diseases will be further studied and classified.

Section II. is devoted to Beri-beri, Epidemic Dropsy, and Sleeping Sickness, these ailments being grouped together under the title of "General Diseases of Undetermined Nature." The last named has, within the past 12 months, assumed an absorbing interest, for sleeping sickness has spread beyond the Congo Basin, where it was originally met with, and reached Central Africa and even threatens the inhabitants of the Nile Valley. Originally considered to be associated with the presence of filaria perstans in the blood, an assumption now practically set aside, its etiology was subsequently referred to the presence of a certain diplococcus; but showing how rapidly facts accumulate in this sphere of inquiry, even since the appearance of this manual evidence of a confirmatory character has been obtained, through the investigations of Castellani and Bruce, that the disease is associated with, or caused by, a trypanosome met with in the cerebro-spinal fluid.

Of the remaining sections No. III. is devoted to Abdominal Diseases, No. IV. to Infective Granulomatous Disease, No. V. to Animal Parasites, No. VI. to Diseases of the Skin, and No. VII. to Local Diseases of Uncertain Nature.

Perhaps the most complete and important piece of new work related is the discovery of the relationship of the mosquito to yellow fever. The United States Army Commission investigated the mosquito theory of yellow fever in a wholly convincing manner, with the result that not only the means by which yellow fever is carried has been settled, but, as has been proved in Havana, the extermination of the stegomyia mosquitoes has resulted in the disappearance of the disease from that city. The possibility of the introduction of yellow fever into Asia by way of the Central American Canal is referred to and the means of its prevention are described. Another theory which now becomes a scientific fact is that the filarial embryo finds its way into the proboscis of the mosquito, almost conclusively proving what was long ago conjectured by Sir Patrick Manson that the parasite is conveyed to warm-blooded animals whilst it feeds upon them. Many other new facts deserve notice, but the above will suffice to show the necessity for a new edition of "Tropical Diseases." Tropical pathology is advancing so rapidly that from week to week, certainly from month to month, new conclusions are arrived at and fresh information is brought to light. It will be seen from our review of the report of Dr. Lacerda's researches and from the letter from our New York Correspondent which appears at p. 345 that the theory that the mosquito is the only means of transmitting yellow fever is not universally accepted, though without doubt it is the most important agent.

Throughout every page of the book we recognise the handiwork of a master of his subject. No disease is touched upon that does not afford proof that it has been carefully considered and the chaff separated from the wheat. Not only are we indebted to Sir Patrick Manson for much that is new in the book but the work of others is duly recognised and appreciated, the whole forming a compendium of tropical diseases of pre-eminent excellence. The plates and illustrations are good and of a serviceable character. The practitioner in the tropics will welcome the new edition of this manual, a book which he recognises as essential for him to have and one on the general accuracy of which he can thoroughly rely.

Recherches sur la Cause et la Prophylaxie de la Fièvre Jaune, faites au Laboratoire de Biologie du Musée National de Rio de Janeiro. (Researches upon the Cause and Prophylaxis of Yellow Fever, made at the Biological Laboratory, National Museum, Rio de Janeiro.) By Dr. J. B. LACERDA. Rio de Janeiro: Imprenza Naiconal. 1902. Pp. 68 + 11 Plates.

THIS work by Dr. Lacerda is divided into two parts—viz., the first, in which are detailed the observations and experiments demonstrating the cause of yellow fever to be a *ferment;* and the second, containing an account of the different means of access of the disease to the pathogenic germ. Dr. Lacerda remarks that although so much has been done, especially by Sanarelli, to elucidate the cause and pathogeny of this malady, yet that there are a number of facts not yet explained. He holds that this disease as regards its causation differs from the type common to the infectious diseases in general and that it has a distinct individuality so as to merit a special location amongst the zymotic affections. From his researches he deduces the following facts: that the cause of yellow fever is a ferment present in the blood, the vomit, the liver, the stomach, and the kidneys of the patient, the liver being the organ more especially affected; that this ferment reproduces itself in the digestive canal of the culex, where it is found to possess the same attributes as it has in the blood and organs of those attacked with the disease; that the ferment is acid and that consequently the most rational treatment is by alkalies. The success of this treatment, first proposed by Sternberg, was shown, amongst others, by Guardia and Martinez at Havana, where the mortality following it was only 13·59 per cent. as compared with a mortality of 43·5 per cent in cases not so treated.

Regarding the means of entrance into the human organism the author holds that the poisonous agent is infective either by subcutaneous inoculation or through the stomach. The stings of the culex that has fed on a yellow fever patient are chiefly the agency by which the disease is spread in the former case. But Dr. Lacerda does not consider this to be the sole method of the spread of the disease, for he has caused rabbits to succumb with the symptoms and post-mortem lesions of yellow fever after introducing into their gastric cavity the cultivated ferment of the disease. How the pathogenic entity reaches the stomach is not definitely determined; it is certainly not by the drinking water, for according to Dr. Lacerda not a single valid fact can be brought forward in its favour in this respect. He considers that flies, after settling on the excreta of yellow fever patients, alight on articles of food and so infect them. One of his arguments against the culex being the sole agent in the transmission of the disease is this. The normal life of the mosquito does not exceed two months. How, then, according to this theory, can yellow fever, after being absent for six months in Rio de Janeiro, reappear at the end of this period? Again, in Louisiana in 1850 an epidemic of yellow fever was not modified by a temperature sufficiently low to produce ice, yet the mosquitoes there were all quiescent during this period of low temperature.

Dr. Lacerda concludes his work with the description of the preparation of his "vaccine" and announces his belief that by means of its repeated inoculation strangers newly arrived in Brazil will be rendered immune for six months against an attack of yellow fever and will acquire an absolute immunity after a sojourn of two or three years in the yellow fever zone, provided that they are reinoculated each year during the epidemic season. The "vaccine" is prepared from the toxic materials in the liver of rabbits which have succumbed to the infection of the "hyaline cellules," the name given by Dr. Lacerda to the ferment of yellow fever. At the same time protection against the bite of the mosquito must be carried out.

Traitement de l'Avortement. (The Treatment of Abortion.) By Dr. MOISE MISRACHI. With a preface by Dr. J. A. DOLERIS. Second edition. Paris: R. de Rudeval. 1902. Pp. 366. Price 6 francs.

THIS book, of which a first edition appeared in 1894, has been written by the author mainly with a view to show the advantages to be derived from the treatment of cases of complicated or incomplete abortion by early curettage. The principle of such early intervention is confirmed by Professor Doléris who contributes an introduction. The frequency with which the author has had occasion to interfere will be seen from the fact that in a total of 248 cases of abortion he has found it necessary to empty the uterus no less than 187 times—viz., in 75·4 per cent. of his cases. As he points out, however, practising as he does in a country district amongst ignorant people, he is often only called in when some complication is present. In only 120 cases has he seen the patients from the very commencement and been able to carry out the whole treatment of the case. Of these 120 cases, in 59 he has been obliged to interfere, or in 49·1 per cent. In two cases the patient was suffering from septicæmia, while in 39 cases the indication for interference was hæmorrhage. All the 59 patients recovered. The results are certainly very good, but it must be remembered that many cases in this plan of treatment are operated upon which under ordinary conditions would be left alone and would no doubt do quite well. The book contains a large number of illustrative cases and the subject is discussed very fully although perhaps hardly in a very convincing manner. We are not in agreement with the author in his fervid recommendation of the curette, and while we quite admit that when the proper indications are present the uterus should be emptied, yet we would much prefer the finger for this purpose to the curette, and it would require a great deal more evidence than Dr. Misrachi has brought forward to convert us to the contrary opinion. Under the treatment of inevitable abortion the writer recommends very strongly the use of antipyrin and of viburnum prunifolium as uterine sedatives. The work is interesting but discursive, presenting only one view of a very important question.

Eye Symptoms as Aids in Diagnosis. BY EDWARD MAGENNIS, M.D. R U.I., D.P.H. R C.S. Irel., late Clinical Assistant at the Royal London Ophthalmic Hospital. London: Simpkin, Marshall and Co., Limited. Bristol: John Wright and Co. 1903. 12mo, pp. 103. Price 2s. net

ALTHOUGH Dr. Magennis has evidently taken much pains with this little book we doubt whether the class of men for whom it is written will derive much advantage from its perusal, for if they can see the details of the fundus of the eye that are here described, such, for example, as obliteration of the outline of the papilla, radiating striæ fading off gradually into the surrounding tissue, swollen and tortuous veins, and small hæmorrhages and exudations in the neighbourhood of the disc, they must have been dull and incurious indeed if they had never inquired what diseases these conditions connoted. It is almost an unavoidable defect of booklets like this that with great condensation obscurity creeps in. Thus all that is included under Lagophthalmus is that it is synonymous with "hare's eye," that it is an inability to close the eyelids, and that "it is present in Basedow's or Graves's disease, where it is often so aggravated as to cause blindness"; how or why is not given. The author remarks that the cornea, the lens, and the vitreous are of no diagnostic value, a sweeping statement that is open to discussion and we think to refutation. In commenting on the treatment of iritis Dr. Magennis mentions atropine, lead, leeches, protection of the eyes from light, and constitutional treatment. We should have omitted the lead and should have mentioned opium. The relation of the pupil reflex to lesions of the nervous system is well given; a woodcut showing the course of the nerve fibres might have been advantageously introduced. A few errors have crept into the letterpress. "Punctum lacrymalis" should be "punctum lacrymale," an error that occurs in the text and is repeated in the index. "Purkinge" should be "Purkinje" or "Purkinye." The book might be increased in size with advantage.

LIBRARY TABLE.

Flora of Thanet: A Catalogue of the Plants Indigenous to the Island, with a Few Rare Aliens. By G. M. PITTOCK, M.B. Lond., and Friends. Margate: R. Robinson and Co. Pp. 14. 1903.—We have received from Dr. Pittock his catalogue of the Flora of Thanet, founded upon the "Flora Thanetensis" published by Mr. John Flower some 50 years ago. Mr. Flower's list numbered 454 plants and included the algæ. The present list of 565 plants is exclusive of the algæ. Every plant recorded in Mr. Flower's work has been verified by Dr. Pittock and his fellow workers or has been rejected as not now to be found, so that their revised list, if not exhaustive, may be considered as nearly so. The catalogue is a simple list of the classical names of the flowers, notes of the localities where they were discovered having been prudently omitted lest ruthless collectors should descend upon the rare varieties and exterminate them, as is their disgusting wont. The life of the medical man in the country is nowadays so onerous and so ill-paid that few general practitioners have leisure to turn aside and to seek diversion from the daily routine by excursions into some scientific pursuit. This is to be regretted, for medical men are by their accurate training fitted to examine and to report upon the flora and fauna of the localities in which they reside. Systematic collation of local work done by members of our profession would have inestimable scientific and historic value, and we wish that we could chronicle more efforts on the part of medical men in the direction of field natural history.

Practical Handbook of the Diseases of the Eye. By D. CHALMERS WATSON, M.B., F.R.C.P. Edin., Ophthalmic Physician, Marshall-street Dispensary, Edinburgh. Second edition, with nine Coloured Plates and 31 Illustrations in the text. Edinburgh and London: William Green and Sons. 1903. Small 8vo, pp. 276.—This small book is one of those of which so many have recently appeared intended for students who are attending eye wards as clerks or dressers and for practitioners who have not had the opportunity of studying ophthalmology in their hospital career and who desire to acquire some information upon that subject. Such works are useful in familiarising the reader with the names and the more prominent features of the chief forms of disease of the eye, the names of the principal drugs in common use, and some of the indications for their administration. The division of the text into short paragraphs with separate headings may possibly assist some learners, but it has the disadvantage of rendering the description of any disease such as iritis exceedingly uninteresting, reducing it, in fact, to a mere syllabus. The woodcuts in the text are well executed, but the chromo-lithographs, though recognisable as representations of certain conditions, admit of considerable improvement.

JOURNALS AND MAGAZINES.

Caledonian Medical Journal.—The July number contains an account of the twenty-third annual meeting of the Caledonian Medical Society, held at King's College, London, on July 11th. The society now consists of 214 ordinary and 14 honorary members; at this meeting a lady member was for the first time elected. Three of the essays sent in competition for the Stewart Celtic prize on "Old Highland Therapy" were so nearly equal in merit that £5 were added to Dr. Stewart's donation of £10 and the prize was divided between these three competitors. Their names are Mrs. K. Whyte Grant, New Zealand; Mrs. Robert Moodie, Edinburgh; and Mr. Henry Whyte, Glasgow. The essays will be published in the next three numbers of the journal. At the annual dinner, which was held on July 10th at the Trocadéro Restaurant, the toast of "Caledonia" was proposed by the Bishop of Exeter and Highland airs were played by the boy-pipers of the Royal Caledonian Asylum. The last part of the proceedings was a river excursion to Windsor and Eton. The presidential address, delivered at the meeting by Dr. H. Cameron Gillies of London, is printed in the journal under the heading of "The Caledonian Idea." It is mainly an interesting historical inquiry into the etymology of the word Caledonia which, he says, first occurs in the writings of Lucan about A.D. 63; the displacement of the original inhabitants by the "Scottish invasion" from Ireland is also discussed.

Dublin Journal of Medical Science.—The original articles in the July number are:—On two cases of Lymphatism, by Dr. George Peacocke; on the Late Cholera Epidemic in Egypt, by Lieutenant-Colonel G. F. A. Smythe, R.A.M.C.; and Notes on a Year's Asylum Work, by Dr. W. R. Dawson.

Mercy and Truth.—The principal article in the July number is a description of a visit to Dera Ismail Khan in the North-west of India by Mr. Arthur Neve, F.R.C.S. Edin.

Analytical Records

FROM

THE LANCET LABORATORY.

"TABLOID" QUININE SALICYLATE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL-BUILDINGS, LONDON, E.C.)

WE have previously had occasion to examine tabloids of quinine salicylate containing three grains of the salt. We have since received specimens containing one grain of quinine salicylate which enables smaller doses to be given at more frequent intervals. The drug has been employed in influenza, neuralgia, and diarrhœa. The salicylic acid from which the salt is prepared is stated to be physiologically pure.

STRONG BEEF TEA.

(GEORGE MASON AND CO., LIMITED, WALHAM GREEN, LONDON, S.W.)

This "strong beef tea" is contained in tins of a capacity of one and a half pints. It is a "whole" beef "tea," since it contains not only the extractives of the meat but the muscular fibre also in a finely comminuted state. According to our analysis the amount of meat fibre is 3·74 per cent. or equal to one ounce of dried fibre in one and a half pints. The extractives and albuminous matters in solution amounted to 12·95 per cent., of which 2·37 per cent. is due to mineral salts. The "tea" has a pleasant flavour of beef and is very well suited, as is claimed, "for emergency or general use at nursing institutions" It is both appetising and nourishing and its concentrated condition is an advantage

MALTOVA

(MALTOVA LIMITED, 11, NEW STATION STREET, LEEDS)

We have already expressed a favourable opinion in regard to this preparation which consists of a combination of an active malt extract with raw egg Maltova has recently been improved in an important dietetic direction by enriching it with those lime salts which are necessary for the mineral nutrition of the body Moreover, maltova is now contained in a wide mouthed bottle which is straight in shape and is provided with a screw cap In this way the removal of the sticky contents may be effected in a cleaner and more convenient manner than before Judging from the amounts respectively of fat and proteid which we obtained on analysis the proportion of egg is not very high, the sugar amounting to at least, and probably more than, 70 0 per cent

(1) CHELTINE NUTRIENT MILK CHOCOLATE AND (2) CHELTINE MALTED MILK CHOCOLATE

(CHELTINE FOODS LIMITED CHELTINE WORKS CHELTENHAM)

(1) To the nutrient milk chocolate, which is excellent as regards flavour, a proportion of soluble proteid of milk has been added and accordingly our analysis shows a high percentage of nitrogen The complete analysis was as follows moisture, 0 15 per cent, mineral matter, 0 16 per cent, fat, 27 72 per cent, proteid, 29 98 per cent, and sugar and other cocoa constituents, 41 99 per cent The chocolate is an economical and nutritious sweetmeat (2) The malted chocolate milk contains, in addition to full cream milk and cocoa extract, a proportion of cheltine soluble maltose food[1] Our analysis gave the following results moisture, 0 24 per cent, mineral matter, 0 26 per cent, fat, 35 52 per cent, proteid, 12 50 per cent, and maltose and cocoa extractives, 51 48 per cent The proportion of moisture is again very low The preparation has an agreeable malty flavour and is a very palatable nutrient compound.

COGNAC BRANDY (THREE STAR)

(HENNESSY AND CO AGENCY: TWISS AND BROWNINGS 47 MARK LANE, LONDON, E.C)

The analysis of this brandy gives results entirely in agreement with those yielded by genuine grape spirit distilled and matured in the celebrated Cognac district The figures were as follows alcohol, by weight 40 80 per cent, by volume 48 21 per cent, equal to proof spirit 84 49 per cent, extractives, 0 70 per cent containing sugar, 0 20 per cent In regard to secondary products the following were the results, given in grammes per hectolitre of absolute alcohol present acidity reckoned as acetic acid, 74 52, aldehydes, 16 56, furfural, 1 65, ethers reckoned as ethyl acetate, 109 29, and higher alcohols, 124 20 The relation of these constituents to each other is exactly that which is found in genuine brandy Thus the ethers occur in very nearly the same amount as do the higher alcohols, while the furfural is less than half of that which is commonly found in pot still whisky The brandy is very satisfactory to the palate, it is smooth and soft, possessing that peculiar *finesse* characteristic of the brandy from the celebrated district of Cognac For medicinal purposes it is important to employ a spirit of this undoubtedly genuine type.

GRANDE CHAMPAGNE (GRANDE IDEAL)

(LOUIS BULTEAUX PERE, EPERNAY LONDON AGENCY 29, LUDGATE HILL, E.C)

We have examined samples of the 1893 and 1895 vintages of this brand As will be seen, there are differences of composition between the two wines which are of dietetic importance The analysis of the 1893 wine was as follows alcohol, by weight 11 23 per cent, by volume 13 90 per cent., equal to proof spirit 24 36 per cent., extractives, 2 75 per cent, mineral matter, 0 07 per cent, volatile acid calculated as acetic acid, 0 072 per cent., fixed acid calculated as tartaric acid, 0 39 per cent., sugar, 1 34 per cent., volatile ethers calculated as ethyl acetate, 0 202 gramme per litre, and fixed ethers calculated as ethyl tartrate, 0 45 gramme per litre The wine is described as "brut," a description which is quite in accordance with the small amount of sugar shown in the above analysis The wine has excellent bouquet and taste and the samples which we examined were in fine, sound condition The analysis of the 1895 wine was as follows alcohol, by weight 11 69 per cent, by volume 14 46 per cent, equal to proof spirit 25 34 per cent., volatile acidity reckoned as acetic acid, 0 12 per cent, fixed acidity reckoned as tartaric acid, 0 45 per cent., extractives 1 69 per cent, mineral matter, 0 10 per cent, sugar, 0 21 per cent, volatile ethers reckoned as ethyl acetate 0 343 gramme per litre, and fixed ethers reckoned as ethyl tartrate, 0 968 gramme per litre This wine is also described as "brut and, as will be seen from the analysis, it is for all practical purposes free from sugar On this account it is suitable for those who must avoid an excess of sugar The wine is quite dry to the taste, the flavour is delicate, but in this regard shows less 'character' than does the previous specimen

(1) IMPERIAL WHISKY AND (2) O V H WHISKY

(W GREER AND CO, LIMITED GLASGOW)

(1) The Imperial whisky gave the following results on analysis extractives, 0 110 per cent, and alcohol, by weight 38 83 per cent., by volume 46 08 per cent., equal to proof spirit 80 75 per cent. In regard to secondary products the following were the results expressed in grammes per hectolitre of absolute alcohol present acidity reckoned as acetic acid, 39 06, aldehydes, 14 32, furfural, 3 49, ethers reckoned as ethyl acetate, 106 76, and higher alcohols, 108 50 These results indicate a blended malt spirit and accordingly the taste is delicately malty Further, the spirit has been thoroughly matured in sherry casks which probably accounts for the higher amount of ethers than is usual in whisky The spirit is evidently of good quality and is an excellent and palatable blend. (2) The O V H whisky gave the following results on analysis extractives, 0 12 per cent, and alcohol, by weight 39 55 per cent., by volume 46 86 per cent., equal to proof spirit 82 12 per cent. The secondary products were estimated to be as follows expressed in grammes per hectolitre of absolute alcohol present acidity reckoned as acetic acid, 15 56, aldehydes, 10 65, furfural, 2 55, ethers reckoned as ethyl acetate, 72 03, and higher alcohols, 85 20 These results indicate again a "blend." The whisky is satisfactorily smooth to the palate, its flavour being delicately malty *It is a spirit of good quality* and is well matured.

UNSWEETENED GIN (FIVE STAR)

(BOORD AND SON 115-121, TOOLEY STREET LONDON, S E)

Genuine gin is a highly rectified spirit and therefore contains a very small proportion of those secondary products of alcoholic fermentation which characterise whisky, brandy, and rum The following are the results in regard to secondary products yielded by the sample of gin above described expressed in grammes per hectolitre of absolute alcohol present acidity reckoned as acetic acid, *nil*, aldehydes, 1 78, furfural, *nil*, ethers expressed as ethyl acetate, 37 28, and higher alcohols, 44 60 Thus the total secondary products amount to only 83 66 grammes per hectolitre of absolute alcohol present Further results of analysis were as follows extractives, 0 04 per cent., mineral matter, 0 01 per cent; sugar, *nil*; alcohol, by weight 37 67 per cent., by volume 34 79 per cent, equal to proof spirit 78 50 per cent The spirit is thus correctly described as dry. It is a pure spirit, delicately flavoured, and entirely free from sugar.

---

[1] Vide THE LANCET, June 20th, 1903, 1748

ANGOSTURA BITTERS (SEIGERT'S).

(KUHNER, HENDERSON, AND Co., 115, CANNON-STREET, LONDON, E.C.)

The preparation of "Angostura bitters" is well known as a tonic and stomachic and even febrifuge, acting much in the same way as cascarilla, calumba, cinchona, and other bitter barks. Bitters act favourably on digestion by inducing the flow of saliva and of the gastric juice, while their effect on the gastric nerves is to produce a sensation of hunger. They are thus useful for a distinctly medical purpose but their continual use is strongly to be discountenanced. The preparation under examination is a clear red alcoholic extract of cusparia bark. According to our analysis it contained 5·96 per cent. of extractives. The bitter principles are chiefly glucosides, bodies which yield glucose by hydrolysis with dilute acids. In regard to alcoholic strength the following were the results: alcohol, by weight 44·18 per cent., by volume 51·82 per cent., equal to proof spirit 90·81 per cent. Angostura bitters have been the subject of adulteration, but we believe this particular specimen to be free from any suspicion on this head.

"ARABELLA" NATURAL MINERAL WATER.

(ARABELLA, LIMITED, 2A, HAY-HILL, BERKELEY-SQUARE, LONDON, W.)

This is a sulphated water of the Hungarian type drawn from springs near Belgrade which in view of its high degree of mineralisation is not so disagreeable to the taste as might be expected. According to our analysis the following is its composition expressed in grammes per litre: sodium sulphate, 21·08; magnesium sulphate, 15·66; calcium sulphate, 0·50; sodium chloride, 1·40; and sodium carbonate, 1·017; total mineral salts, 39·657. The water has a distinctly alkaline reaction. It is an effective though mild saline purgative.

"VISANUS" DISINFECTANT LIQUID SOAP.

(THE VISANUS COMPANY, 2 AND 4, CARRICK-STREET, GLASGOW)

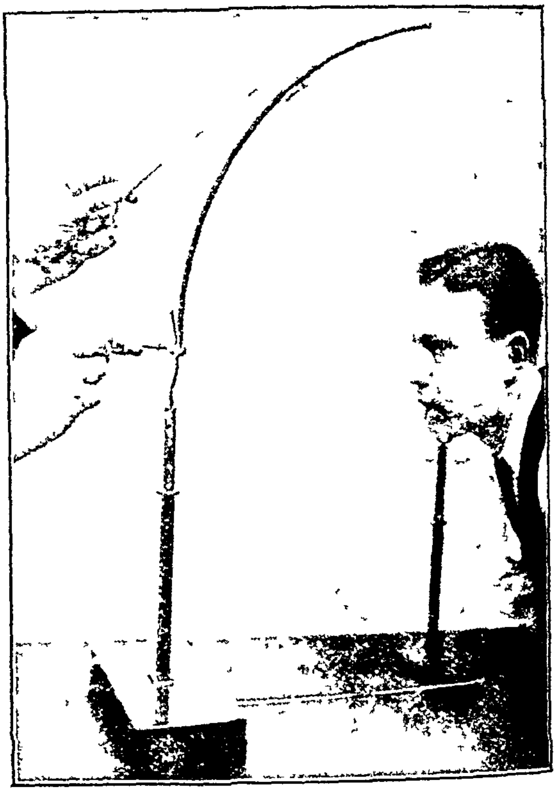
This liquid soap is primarily intended for hospital use, but it is obviously available for other purposes in which the application of an antiseptic and a cleansing agent is desirable. We have examined the preparation and find it to contain an efficient proportion of active germicide. It is perfectly miscible with water and is useful for the disinfection and cleansing of clothes and linen. When properly used it has no injurious action or discolouring effects.

New Inventions.

A NEW PORTABLE PERIMETER.

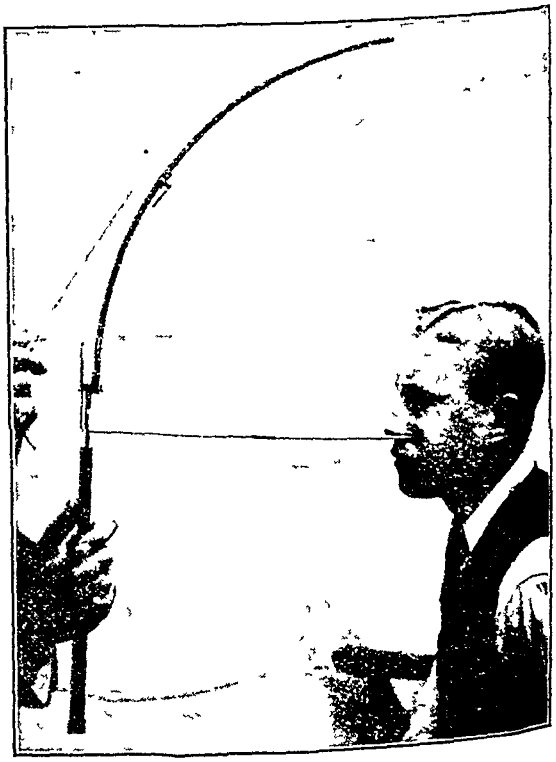
THIS instrument consists of the following parts: 1. Two uprights, to one of which a jointed aluminium arc can be attached, while the other is provided with a rest to support the chin. The uprights are brass tubes which slide within one another and by means of a screw adjustment they can be raised to any convenient height. That which supports the arc fits into a socket on the lid of the box, thus affording complete stability during examination of the visual field. 2. The arc consists of three pieces of aluminium tubing which fit firmly together and form a quadrant of a circle of radius 33 centimetres. The first piece of tubing which springs from the upright is firmly joined to this and cannot be removed. The other two pieces can be readily detached and fit into curved grooves in the lid of the box when the instrument is not in use. 3. The carrier which supports the test object consists of two superposed discs, the anterior of which has an aperture of five millimetres square at its inner margin. The posterior disc can be rotated behind this and the colours white, blue, red, and green placed in succession behind the opening. The carrier itself is moved round the arc by means of a steel wire 10 inches in length in the observer's hand, the movement being very easy and necessitating but little manipulation. 4. A thin metal disc three and a half inches in diameter which can be screwed to the back part of the upright supporting the arc. A point springs from the centre of this disc and there are four clips at its margins to affix the chart. The observer rotates the disc and with it the arc and chart while taking the visual field of the patient.

FIG. 1.



Showing use of perimeter with chin rest.

FIG. 2.



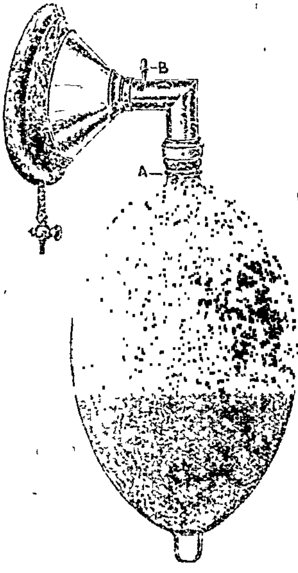
Showing use of perimeter without chin rest.

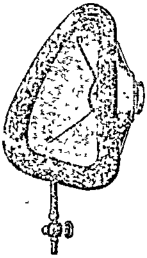
The visual field may be taken with this instrument either with the chin rest or without it. The distance of the patient's eye from the fixation point of the perimeter is measured by means of a steel rod 33 centimetres in length which can be fixed to a hole in the front of the box (if the chin-rest is used) (Fig. 1) or into a hole in the upright which supports the arc one and a half inches below the fixation point of the perimeter if the instrument is used without the chin-rest. The distal end of the rod in the latter case impinges on the patient's cheek while the upright is in the hand of the observer, as shown in the illustration (Fig. 2). With a little practice sufficient steadiness is obtained to take the fixation field in cases of paresis of the ocular muscles, and to measure the angle of a squint without using the chin-rest. It is very useful for examining the visual field in patients confined to bed. The different parts of the instrument fit into a wooden box ten inches long, four and a half inches wide, and two inches in depth. The weight is little and it can readily be carried in a small hand-bag with many other articles. The charts are three and a quarter inches in diameter and are gummed at their upper margins for ready insertion into a notebook. This instrument has been made under my direction by Messrs. Ferrier, 56, Beresford-street, Walworth-road, London, S.E. The workmanship is excellent. The charts are supplied by Messrs. Adlard, Bartholomew-close. The cost is moderate.

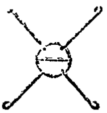
G. T. BROOKSBANK JAMES, F.R.C.S. Eng.,
Assistant Ophthalmic Surgeon, Westminster Hospital;
Assistant Surgeon, Royal Eye Hospital,
Southwark.

THE "IDEAL" INHALER FOR THE ADMINISTRATION OF SOMNOFORM AND ALLIED ANÆSTHETICS.

THIS is the name that has been given by the makers to an apparatus which I have devised and have been using almost daily for over three months. The accompanying illustrations so clearly denote the construction and method that very little further explanation is necessary. Briefly, the chief advantages of this inhaler are as follows:—1. It is simple in construction, unbreakable, and cannot get out of order. 2. The truncated-shaped lint cone being kept in position by a four-armed spring can immediately be removed and replaced at a cost of practically *nil*. 3. By leaving the air valve B open when applying the face-piece the patient is able, however small the quantity of air in the supplemental bag, to take a deep inspiration, which becomes saturated with somnoform in passing through the mask. On closing the valve B after the first inhalation the bag becomes automatically filled, hence obviating the need of removing the face-piece until full narcosis has been obtained. This hastens the induction of anæsthesia and at the same time prevents any waste of the anæsthetic, about half a drachm (2·5 cubic centimetres) of which will usually produce a narcosis of from one to three minutes' duration, according to the temperament of the patient, though more in the form of further doses can be given as required. 4. The supplemental bag is an improvement on the ordinary variety in that it is reversible; hence it is quite a simple matter to keep it thoroughly aseptic, and being made of a new kind of rubber it can be sterilised in boiling water. To release the bag the rubber ring A encircling the neck should be pushed upwards on to the metal collar provided for that purpose. 5. With this inhaler somnoform very advantageously takes the place of nitrous oxide as a preliminary anæsthetic to presenting ether, chloroform, &c. Where ether is selected Clover's ether container should be previously attached. The inhaler can be obtained from the Dental Manufacturing Company, Lexington-street, London, W., who regard so highly the reversible supplemental bag that they are seriously thinking of making gas bags on the same principle.



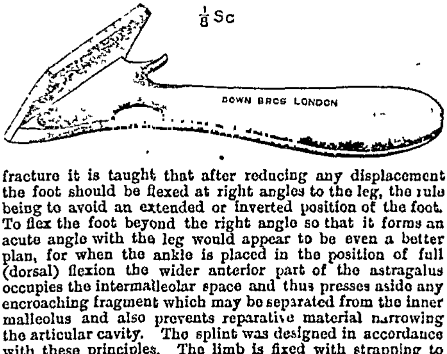




Reading. VERNON KNOWLES, L.D.S. R.C.S. Eng.

A MODIFICATION OF ROUGHTON'S SPLINT FOR POTT'S FRACTURE.

THE accompanying illustration shows a modification that I made in Roughton's splint nearly a year ago and which I now venture to introduce for the treatment of Pott's fracture into the ankle-joint. As in Roughton's pattern, the splint is made of wood and it can be seen to be shaped for the outer side of the leg and foot, the oval fenestra being opposite the external malleolus, but instead of the leg- and foot-pieces being at right angles they together form an acute angle four-fifths of a right angle, and the sole-piece also is fixed at an acute angle with the leg as well as with the foot-piece, the angle in each case being four-fifths of a right angle. In the larger-sized splints the angle of flexion of the foot-piece should be nine-tenths of a right angle. In treating Pott's fracture it is taught that after reducing any displacement the foot should be flexed at right angles to the leg, the rule being to avoid an extended or inverted position of the foot. To flex the foot beyond the right angle so that it forms an acute angle with the leg would appear to be even a better plan, for when the ankle is placed in the position of full (dorsal) flexion the wider anterior part of the astragalus occupies the intermalleolar space and thus presses aside any encroaching fragment which may be separated from the inner malleolus and also prevents reparative material narrowing the articular cavity. The splint was designed in accordance with these principles. The limb is fixed with strapping to the splint, which is evenly padd
bottom foot-piece maintains not
but also inversion. Massage can
on the splint, the knee being well flexed to relax the tendo Achillis, and then, as Pott says, "everything will in general succeed very happily." The splint may be obtained from Messrs. Down Bros., St. Thomas-street, London, S.E.



London. SYDNEY R. SCOTT, B.S. Lond., F.R.C.S. Eng.

THE LEICESTER CREMATORIUM.—The Leicester town council has appointed Dr. C. K. Millard, medical officer of health of the borough, and Dr. Allan Warner, the assistant medical officer, medical referee and deputy medical referee respectively at the Leicester Crematorium. The appointments are made under the provisions of the regulations made by the Home Secretary in pursuance of Section 7 of the Cremation Act, 1902. Before allowing any cremation to take place it will be the duty of the referees to be satisfied that all the requirements of the Cremation Act and the regulations made thereunder have been complied with and that there exists no reason for any further inquiry or examination.

THE LANCET.

LONDON: SATURDAY, AUGUST 1, 1903.

The British Medical Association: The Presidential Address.

Dr. T. D. Griffiths, the President of the British Medical Association, chose for his presidential address the obvious subject, "The Evolution of Antiseptic Surgery," and traced the influence of modern medical knowledge on the progress and advancement of all branches of medicine. It is difficult to deliver a plenary address at such a gathering as the annual meeting of the British Medical Association which practically has not been delivered before, and the President of the Association, the orator in medicine, and the orator in surgery have all had this experience in 1903, and their successors will be in the same plight in future years. The occasion for their words being similar to the occasions that have prompted the words of their predecessors they are bound to go over old ground to some extent. The indications for the address of the President in particular are year by year identical and it follows that every medical man who is called upon to occupy the presidential chair is bound more or less to repeat the phrases of past holders of that dignified position. Dr. Griffiths, we are certain, recognised this fact when he chose so well-worn a theme whereon to address his audience as a description of the evolution and consequences of the practice of antiseptic surgery, but we are of opinion that, as he had more or less to say what others had said before him, he could not have chosen a theme worthier of repetition. The wonderful change that has come over the whole theory and practice of surgery since the comparatively recent days when, working with different objects and on different lines, Lister, Pasteur, and Koch attacked the problems which resulted in the formulation of the antiseptic theory, cannot be too much insisted upon. There are now some two generations of medical men who have been entirely brought up in accordance with antiseptic doctrines, and year by year those born in the modern faith are added to the roll of the profession, while the number of those who received their education before the establishment of those doctrines is sadly dwindling under the onslaughts of time. Therefore, it is well that the story of the evolution of antiseptic surgery should be frequently told—and we may add that Dr. Griffiths tells it with clearness and cogency—for otherwise medical men might forget the significance and importance of the revolution that has been worked in times so near to our own as thirty-five or forty years ago.

An interesting part of Dr. Griffiths's address is that in which he traces the practical application of modern scientific medicine to public health. Here he points out that the majority of thinkers, medical men and laymen alike, are apt to be too optimistic. Sanitary science is a splendid thing, but we, proud of the many practical applications of learned theory to daily use which are comprised under its name, are all inclined to attribute too much to its operation. Dr. Griffiths is, we think, quite justified in saying a warning word, for our public health legislation has not yet justified enormous self-satisfaction. While sanitary science as applied in this country to the lives of the people is responsible for countless benefits to the population our eyes should be open to the equally countless difficulties that attend the administration of the laws regulating State medicine. Whether we are concerned with water-supply, with purity of food, with drainage systems, with accommodation for infectious disease—whatever it may be, we are met with an eternal contest between public and private interests. Upon the whole, in England the public weal prevails and in the end the vested private interest yields, but the progress of the sanitary administration of the country is sorely retarded by constant frictions. As a means of remedying this situation Dr. Griffiths makes the practical suggestion that the power of the medical officers of health of the country should be strengthened and we believe that his proposal will find favour in the eyes of most medical men. He suggests that the county councils should be compelled to appoint county medical officers and that the various urban and rural sanitary districts should be grouped together so that the aggregate of work should be sufficient to constitute a career for a medical officer of health, who must also receive an adequate salary. Dr. Griffiths would entirely do away with the medical officer of health in rural districts who receives £50 for the supervision, which must in most cases be little more than nominal, of a sanitary district comprising as many square miles. No one who has thought over the matter, and certainly no one who has any experience of the conduct of municipal or parochial affairs, can come to any other view than that held by Dr. Griffiths. In the many frictions that occur between public and private interests the medical officer of health should be able to play the part of a strong independent official. To effect this he ought to be placed in an independent position, to be relieved from the responsibilities and ties of private practice, and to be paid properly.

With another suggestion made by Dr. Griffiths with the same end—that of strengthening the sanitary administration of the kingdom—we are also in accord. He desires to see the President of the Local Government Board, in whose department the sanitary administration of the country is vested, placed upon the same footing as the other great Ministers, the Secretary of State for War, the Secretary of State for Foreign Affairs, and the Home Secretary, for example. The present President of the Local Government Board, Mr. Walter Long, enjoys Cabinet rank, but his office is not one that necessarily carries with it a seat in the Cabinet, while a striking difference between his salary and that of the salaries of the great officers of State to whom we have alluded accentuates the mark that is drawn in the official mind between them. We entirely sympathise with the view that the Minister who has charge of the public health of the community ought to be placed in the highest possible public position in the councils of the State. So much is this principle recognised by many medical men that the appointment of a Minister of State for Public Health has been often mooted in our columns and elsewhere. Such a Minister exists in some foreign countries and perhaps the post will be created sooner or later with us, but this is rather a matter for the future. The obvious step forward that should be taken at the present time is to elevate the head of the department of State on whom the duties of a Minister of Public Health fall to a position comparable with that of the heads of the other great departments of State.

The British Medical Association: The Address in Medicine.

IN selecting the infective and infectious diseases as the subject of his Address in Medicine Dr. FREDERICK ROBERTS chose a subject which is well calculated to meet with the approval and to appeal to the diverse tastes of his audience. Indeed, owing to the popular interest which always attaches to the authoritative utterances of the distinguished physicians who year by year are intrusted with these addresses in medicine, and owing to the wide dissemination of the addresses themselves in the lay press, the occasion has been afforded for appealing directly to the public and vindicating the general policy of the medical profession, while certain truths have been enunciated well calculated to impress on governmental, municipal, and sanitary authorities their duties and responsibilities in the safeguarding of the public health.

Dr. ROBERTS takes full advantage of his opportunity and opens the flood-gates of oratory on a subject on which the medical mind is particularly sensitive. In combating and limiting the ravages of infectious disease among all classes of society Dr. ROBERTS points out that our aims are peculiarly single-hearted, disinterested, and beneficent; our efforts, however, in these directions were often traduced by scoffing and slanderous misrepresentation. And in this connexion the conscientious objector, the anti-vivisectionist, and certain other faddists with an "anti" before their descriptive titles come in for a just measure of censure and rebuke. On the other hand, we as a profession are exhorted "never to relax in our efforts to promote the good cause and to encourage, to develop, and to enforce every measure, scientific or practical, which has for its object the mitigation or prevention of disease." In connexion with the attitude of the medical profession in respect of the use and abuse of alcohol, both in conditions of health and of disease, public opinion has recently been stirred by the so-called "International Medical Manifesto" and by the ill-considered and ill-informed vaporings of sensational journals. On this subject Dr. ROBERTS expresses some temperate and rational criticisms. Although, owing to the limitations of his subject, he could not touch on the whole question in its general bearings, nevertheless, so far as the treatment of infectious disease is concerned, his therapeutic postulates entail the discriminating use of moderate quantities of alcohol. He is of opinion that the judicious administration of alcohol has within his own experience been the means of saving many a grave and almost hopeless case from death. This is the sort of positive evidence which takes a great deal of gainsaying. That medical men, both in past times and nowadays, have prescribed alcohol inconsiderately is another matter. The consumption of alcohol in some of our large hospitals has at times been unduly great and no one denies this. But when a physician of Dr. ROBERTS's position testifies to the value of alcohol, properly exhibited, as a life-saving remedy, he is a bold man who resolves in his practice to dispense with its aid.

Although in its more extreme manifestations the author of the address does not appear to be very much in sympathy with the "absurd, irrational, and most mischievous specialism which is so rampant at the present day," nevertheless, as subsidiary to the more ordinary bedside methods which come within the reach of all practical clinicians, he gives full credit to the recent developments, both bacteriological and sero-therapeutic, in the scientific diagnosis and treatment of infectious disorders. At the present day there is an undoubted danger lest the rising generation of practitioners should come to rely too little on their own personal observations and too much on the revelations of the microscope and test tube, and in this connexion Dr. ROBERTS suggests "that while the modern medical student has immense advantages he labours under a decided disadvantage from the point of view of clinical observation, as compared with those of us who served an apprenticeship and became familiar with, at any rate, the more common infectious diseases, even before we started at a medical school." Dr. ROBERTS thus rehabilitates the much debated question of apprenticeship in a novel and interesting fashion, but not, we think, with any serious idea that medical education will ever return to its old course. We know well the many advantages that some apprentices enjoyed; but we know also with many of them their sojourn with a practitioner was the purest waste of time.

The British Medical Association: The Address in Surgery.

THERE is no more obvious subject for the contemplation of members of the British Medical Association than the progress which surgery has made within recent years and Mr. MAYO ROBSON was happy in the choice of this theme, for he himself has taken no small share in the advancement of surgery during the last 30 years. Especially has progress been made in the surgery of the abdomen and on this subject no one is better qualified to speak than the ingenious orator. Thirty years ago there was no abdominal surgery. It is true that a few operations were at rare intervals attempted, such as colotomy, especially the lumbar form, and gastrostomy, but beyond these hardly anything was done. The surgeons of those days were acting rightly in refraining from meddling with abdominal disease, for the results which followed the few operations attempted were, indeed, appalling. Mr. MAYO ROBSON quotes statistics showing that in 1870 in four London hospitals, of 11 cases of ovariotomy nine died. Even the operation for strangulated hernia had a mortality of about 50 per cent. in those cases in which it was considered necessary to open the sac. For nearly all abdominal conditions, which would nowadays at once be submitted to the surgeon no operation was attempted, and the surgeon was practically helpless even in the very few cases in which his aid was sought, for it was never sought until too late.

It was not until the memorable dawning of the new era of antiseptic surgery that it became really allowable to open the abdomen in order to treat some morbid condition contained therein. The wholesome dread of peritonitis, arising they knew not how, deterred the older surgeons from interfering actively with the abdominal viscera even when merely a volvulus of the intestine or a peritoneal band was producing acute obstruction, and they had perforce to content themselves with manipulation, inversion, and succussion. Rarely, very rarely, these manœuvres were attended with success and these occasional successes seemed to justify their employment even in cases in which from our present knowledge it is obvious that nothing but harm could result from such blind and violent methods. The diagnosis was often obscure and, indeed, it cannot be said that we have advanced very far in mere diagnosis, though some distinct progress has been made. At the present time the exact diagnosis is often postponed till the abdomen has been opened and then it is generally quickly made. In this practice there is no little danger of occasional harm resulting, for the more exact the diagnosis previously to the operation the more correctly can the surgeon choose his incision, and the more quickly and easily can he proceed to remedy what is wrong. We would not suggest the postponement for one hour of an operation in order to perfect the diagnosis when an operation is clearly indicated, but there is some risk of exploratory laparotomies being unnecessarily employed.

The progress of abdominal surgery is well illustrated by Mr. MAYO ROBSON by accounts of the operations performed on most of the abdominal viscera, the stomach, the intestines, the kidneys and the ureters, and the uterus, especially in connexion with abnormal gestations, but it is perhaps in the latest achievements of the surgery of the abdomen that interest mainly centres and this is the surgery of the pancreas. This is almost the creation of the last five years. Cysts of the pancreas had previously been opened and drained; now, however, the operations on the pancreas are numerous, and Mr. MAYO ROBSON has himself operated on nearly 100 cases. Acute pancreatitis is a most striking disease; it arises with symptoms closely resembling acute intestinal obstruction and in many cases the abdomen has been opened and no obstruction found, but an acute pancreatitis has been recognised. Recently in some of these cases surgical intervention has been successful and more is to be hoped for in the future. Many cases which have been described as malignant disease of the head of the pancreas have been shown to be cases of chronic pancreatitis and recovery has ensued after drainage of the duct of Wirsung through the bile passages. Calculi of the duct of the pancreas have also been removed, in one case by an incision through the substance of the pancreas. Such modern developments of surgery as these and others quoted by Mr. MAYO ROBSON in his instructive address show not only the extent of the recent work which has been done in the surgery of the abdomen but fill us with hope for the future. At the present time little appears to remain for the surgeon to accomplish, but our experience should teach us that in directions at present undreamt of surgical activity will achieve triumphs which may dwarf what has hitherto been accomplished. It is only reasonable to expect rapid advance

Annotations.

"Ne quid nimis."

ANOMALOUS SMALL-POX AND ITS LESSONS.

THE variations in type which communicable diseases are liable from time to time to assume are eminently interesting from the point of view of the epidemiologist, but for the administrator such vagaries are not unlikely to give rise to awkward predicaments, resulting in some instances in unfounded charges and undeserved rebukes. The public are so accustomed to dogmatic statements that they are prone to attribute hesitation on the part of a medical man to ignorance rather than to accumulated wisdom. An instance of this nature has for a considerable time been before us at Trinidad, where a disease which has presented unusual symptoms, and which has since manifested more distinct features of small-pox, has puzzled the medical profession of the island for many months. Recently, too, phenomena of a somewhat anomalous nature have occupied the attention of the medical profession at home, more especially in Nottinghamshire and at Cambridge. In each instance much excitement has been occasioned and columns of the local press have been devoted to public discussion of the subject. Much of this undue disturbance is the result partly of the demand on the part of the public for a precision of knowledge which the facts do not justify and partly of a tendency on the part of the medical profession itself to meet that demand by a certainty of diagnosis which is not always supported by evidence. It is obviously difficult to diagnose that which has neither been described nor seen, and it would be unreasonable to make the medical profession responsible for what may not inaptly be termed a freak of nature. All that can be fairly asked is that reasonable precaution shall be exercised and that where a doubt exists the action taken in consequence of such doubt shall be that dictated by the first principles of preventive medicine—i.e., that the public safety should always receive the benefit of that doubt and that a disease which may not improbably prove to be small-pox should, so far as preventive measures are concerned, be treated as if it were small-pox. Although the number of cases of small-pox has increased within the last few years it is still true that the majority of medical practitioners have never seen a case of the disease, much less such a selection of cases as would enable them to make a correct diagnosis in the face of anomalous symptoms. But it has to be borne in mind that there are now many medical men who are familiar with the disease and whose opinion in a case of doubt would be of the greatest value. The services of such experts can be easily procured, and the sanitary authority which hesitates to procure such advice on the score of expense does not show a high appreciation of its responsibilities. Judging from recent events which we have no need to particularise it seems to us that it is very desirable to make public a doubt rather than to proclaim a definite opinion which the facts are insufficient to justify. This is more especially the case when the dogmatism is likely to involve a serious risk to the public health and discredit to responsible public officials. In endeavouring to arrive at a conclusion in the case of a disease such as small-pox the greater the number of cases which can be examined the smaller the margin of error, and it is possible by examining a number of cases to obtain, as it were, a complete type of the disease. If photographs of the cases occurring in Trinidad and other places are examined it is possible to select from each group some which are absolutely anomalous and others which are absolutely typical, and we cannot but infer that were a sufficiency of cases seen in each instance there would be less liability to mistake. Wherever there is the least doubt isolation should be practised and vaccination or revaccination at once carried out and the public will learn in time to appreciate the fact that preventive medicine acts upon doubts as well as upon certainties. In this connexion we would appeal to the lay press, upon which many of the public rely solely for their information upon all subjects, not to make absolutely unfounded statements. For instance, a paragraph recently appeared in a London morning paper in which Dr. S. Monckton Copeman was credited with having said that the Cambridge epidemic was neither chicken-pox nor small-pox but a complaint hitherto unidentified. As a matter of fact Dr. Copeman never said any such thing. Incorrect statements such as this are dangerous in that they lead the "man in the street" to neglect precautions, above all that of vaccination.

THE HEALTH OF THE ARMY.

IN an annotation in THE LANCET of July 25th, p. 246, we dealt with the special memorandum issued by Sir William Taylor, Director-General of the Army Medical Service, in regard to the deterioration of physique said to be observed among intending recruits. We are not, however, desirous of discussing here the significance of the memorandum, except in so far as it raises suspicions as to the fitness of the men actually accepted. There appeared recently the Army Medical Department Report for 1901 and from this we learn that in the army as existing on a peace footing the mortality-rate for the United Kingdom was 4·71 per 1000. For the last eight years the rates under similar conditions in the armies of continental powers have been: France, 4·58 per 1000; Italy, 4·87 per 1000; and Russia, 5·32 per 1000, so that it will be seen that our British results are nothing much to boast of. The figures given for France are not regarded with any special satisfaction in that country and Dr. Granjux has been seeking to elucidate the influences to which they are to be attributed. He finds that the rate ranges from 3·61 for the "ouvriers d'artillerie" to 7·88 in the case of the "infirmiers" who may be taken as corresponding roughly to our hospital orderlies. These figures are, he believes, to be correlated with the facts that the artillery workmen are usually volunteers and pursue their avocation in well-ventilated shops, while the men in the second category are exposed to the risks incidental to insanitary conditions and contagion. Our own army returns show a minimum rate of 3·51 for the Household Cavalry and a maximum of 7·92 for the regimental depôts, while the figures for the garrison staff and departments are also high, being 5·63. Causes somewhat similar to those mentioned in connexion with French soldiers may therefore be traced in the case of the British. It will be noticed that the figures for the German army are not given above. They are said to be only 2·32 per 1000, a fact which "gives furiously to think." The difference, as compared with France, is declared to be due to the differences in the birth-rate, and consequently in population, of the two countries. Each keeps up a huge standing army, but as the resources of Germany are larger she has not to enforce conscription with the same thoroughness as is necessary in France and therefore doubtful material has not to be utilised to the same extent. But what explanation is to be advanced in regard to British troops? An inquiry dealing with this point might well be undertaken by the Commission which Sir William Taylor suggests should, with the advice of the Royal Colleges of Physicians of London and Surgeons of England, be appointed to consider the question of recruiting. In a letter to us, which has also been communicated to the lay press, the Duke of Wellington, who is President of the National Service League, points out that a fairly accurate indication of the improvement or the reverse of the physique of an army can be obtained by taking statistics relating to a long series of years. "Nor is it possible," he says, "to escape the conclusion that if the physical standard of an army is improving or deteriorating it must be at least to some extent a barometric indication of a similar tendency in the national physique." It must not, of course, be forgotten that in this country our army recruits are taken for the most part from the unskilled labouring classes, while in countries where conscription is in force the army represents all classes of the population. But even taking this fact into consideration, the Duke of Wellington states that statistics show an undoubted tendency to deterioration in the physique of recruits and in the health and stamina of our army as compared with that of Germany.

COMPLIMENTARY DINNER TO MR. JONATHAN HUTCHINSON.

Sir H. Greenway Howse presided on July 23rd at the complimentary dinner given at the Trocadéro Restaurant in honour of Mr. Jonathan Hutchinson. Covers were laid for 154 guests. At the high table to the right of the chairman were seated Mr. Jonathan Hutchinson, Dr. Robert Barnes, Sir J. Fayrer, Mr. W. H. M. Christie, Dr. G. W. Potter, Rev. T. R. R. Stebbing, Dr. R. Farquharson, Sir John Tyler, and Mr. Andrew Clark; to the left were seated Sir Thomas Barlow, Sir Henry Burdett, Sir Anderson Critchett, Dr. Theodore Williams, Sir Alfred Cooper, Professor Adami, Dr. G. A. Heron, and Mr. H. T. Butlin. Letters regretting their inability to attend were received from Lord Strathcona, the Attorney-General, Sir R. Douglas Powell, Sir T. Lauder Brunton, Sir Henry Thompson, Sir William H. Broadbent, Professor T. Clifford Allbutt, Dr. Peter Horrocks, Mr. F. Eve, and others. Sir H. G. Howse, in proposing the health of Mr. Jonathan Hutchinson, said that when he (Sir Henry Howse) entered the profession in 1861 the name of Mr. Hutchinson was then fully before the medical profession. Referring to the journeys which Mr. Hutchinson had made in South Africa and India, Sir Henry Howse asked who amongst them at the age of 73 years would care to undertake long and arduous journeys in search of facts which might support or might damn some hypothesis of interest to the profession. He thought that such a record was most remarkable. He would remind them that that dinner was held on the seventy-fifth birthday of Mr. Hutchinson. Mr. Hutchinson had always taken great interest in medical studies and also in public matters, for when the London County Council put forward its proposition to open Lincoln's Inn Fields Mr. Hutchinson persuaded the Council of the Royal College of Surgeons of England to abandon its attitude of opposition to the scheme and to help it forward. Sir Joseph Fayrer, who also spoke to the toast, remarked that he always read Mr. Hutchinson's books with profit and had learnt to look upon him with profound respect. What had struck him as most deserving of imitation was the energy with which Mr. Hutchinson had pursued his studies up to his seventy-fifth year with fidelity of conscience and with the true scientific spirit, always striving to ascertain what was right simply for the sake of right. He (the speaker) had been asked to refer to what Mr. Hutchinson had done for the colonies and he wished to express the gratitude of those young men who had come from the colonies. Sir Joseph Fayrer concluded by regretting that no public honour had been bestowed on Mr. Hutchinson. Mr. Hutchinson, in thanking those present for the cordial way in which they had drunk his health, referred to the healthy feeling of pride which he experienced in knowing that he had gained the esteem of so many influential friends. Such recognition helped him on in his work and he thanked Sir Joseph Fayrer for mentioning fidelity of conscience. He was willing to claim fidelity of conscience because he had been brought up in the society of Quakers, amongst whom the one dogma was conscience. Turning to the question of leprosy Mr. Hutchinson related how when visiting Robben Island he saw over 500 persons confined for life because of the inattention of the medical profession to facts. In his opinion leprosy was not contagious and yet on Robben Island there were confined the children of white parents condemned to association with Hottentots and Kaffirs, and he contended that therein lay a motive for work for what remained of his life—to render the medical profession alive to its duty in regard to leprosy. In the course of his concluding remarks Mr. Hutchinson said that he believed poetry inspired him with motives for dry scientific work and he had always tried to act up to the motto of the German poet, "Keep true to the dream of your youth." The toast of "Our Guests" was given by Sir Thomas Barlow who said that their presence there was in honour of one who had given a rare example of unremitting labour and practical enthusiasm not only in surgery and pathology but also in the cause of education. There was thus a special fitness in what he called the eclectic character of the gathering that evening in honour of Mr. Hutchinson. The toast was acknowledged by Mr. Christie, the Astronomer Royal, and the company separated after the chairman had responded to the toast of his health proposed by Sir Alfred Cooper.

THE DANGERS OF THE HANSOM CAB.

THERE seems to be but one limit to the extent of the casualties for which the hansom cab may be responsible. That limit is the fortunate circumstance that these vehicles usually carry only two persons besides the driver. We are led once more to animadvert upon the many and dangerous defects of the "two-wheeled hackney coach" by the tragedy that occurred in Piccadilly on July 26th. It will be remembered that on that day a hansom cab horse bolted, that the driver was flung from the box against the railings of St. James's Church, sustaining so severe a fracture of the skull that he died very shortly after, and that of the two occupants one met with a fate similar to that of the driver, while the other is still in St. George's Hospital under treatment for fracture of the anterior and middle fossæ of the base of the skull and fracture of the lower jaw. It may be inferred that the bolting of the horse is no fault of the hansom cab. Even this is only true to a certain extent, for according to some accounts of this accident the horse previously to bolting had slipped several times on the wood pavement. This, no doubt, unsettled the horse's nerves, for there is no animal so prone to fits of unreasoning terror as a horse. Moreover, owing to the arrangement of a hansom cab and to the leverage which it exerts, should the horse slip it is only able to recover itself with great difficulty. The chances, too, of danger to those inside the vehicle should any accident occur to the horse are much greater in the case of the hansom cab than in that of any other kind of carriage in common use. A hansom cab is easily upset, is difficult to get out of, and is so constructed as to inflict a maximum of damage upon those inside should the vehicle be overturned or be violently jolted. In the latter case, not to mention severe contusion or fracture of the legs, there is the risk of being guillotined, or at the least partially scalped, by means of the edge of the folded window. This is no mere fanciful idea. It is not long since Mr. Chamberlain illustrated in his own person a mild form of the latter accident, of which we have seen in a London hospital an extreme example. In this case the cab-horse fell, the occupant's hat flew off, and the top of his head coming violently into contact with the window, which was "up," the scalp was split across almost from ear to ear and the unfortunate victim reached hospital with the anterior portion hanging over his face. When it is remembered with what peculiar difficulty a hansom cab is entered, how if there be mud some of this is almost inevitably brushed from the wheel on to the coat or skirt of him or her who enters, and that besides actual dangers the hansom cab is thus beset with minor inconveniences, it may well be wondered how it is that this form of public conveyance retains its place in the public use, if not in the public esteem. A hansom cab which minimised certain of these inconveniences was described in THE LANCET of May 9th, p. 1311. If the four-wheeled cab were but further improved—it has made some strides of recent years—and particularly if it could be easily converted into an open carriage in fine weather, we feel certain that the number of hansom cabs and with it the number of cab accidents would speedily be reduced—a "consummation devoutly to be wished."

POOR-LAW GUARDIANS AND VACCINATION FEES.

THE Vaccination Act of 1898 produced considerable modifications in the duties of public vaccinators, chiefly in the direction of increasing the amount of attention that was thenceforth to be given to individual cases, and in other respects it made a variety of important changes in the system which had previously been in operation. Vaccination stations were abolished and instead of the children being taken to the public vaccinator he was required to attend at their homes in the event of the parents preferring this course. Only glycerinated calf lymph was to be used and attention to antiseptic methods became essential. It was easy to foresee that this multiplication of duties would involve additional expenditure and our columns have on many occasions borne witness to the annoyance felt by boards of guardians at the increased outlay under the head of vaccination fees since the beginning of the year 1899. By the Vaccination Order of 1898 the Local Government Board fixed a maximum and a minimum charge for the operation, and during the last two or three years a number of boards of guardians have, by adopting resolutions and otherwise, expressed their anxiety to have the official scale of fees reduced. To take a comparatively recent instance, the Wigan board of guardians at a meeting held last May had before them a return extending over several years and showing that the fees payable to public vaccinators were £222 for the half-year ended Michaelmas, 1898, and £212 for the half-year ended Lady-day, 1899, while they were £1069 for the half-year ended Michaelmas, 1902, and £935 for the half-year ended Lady-day, 1903. The guardians resolved to prepare a memorial to the Local Government Board, calling attention to these facts, praying for the issue of a new Vaccination Order with a reduced scale of fees, and suggesting that the fee should be 2*s*. 6*d*. for successful primary vaccination or revaccination at the home of the person vaccinated and 1*s*. 6*d*. for successful primary vaccination of any person other than a child at the surgery or for revaccination at the surgery. In support of this proposal the guardians asserted that the above charges were quite as high as an ordinary country practitioner would make to his patients, but this statement is inaccurate and misleading, for the Wigan Medical Guild some years ago passed a motion to the effect that the minimum fee for vaccination at the surgery should be 2*s*. 6*d*. The usual fee for vaccination at home is 5*s*., but among the working classes vaccination at home is not often asked for. Now what has the public vaccinator to do for the 5*s*., or at most 6*s*., which he receives? From the list supplied by the vaccination officer he has to advise by letter or post-card the day on which he proposes to visit and to vaccinate. If the parents are out he has his journey for nothing. If there is epidemic disease in the house he has to postpone the operation and to communicate with the medical officer of health. If the child is in and the parents are willing to have the operation performed he has to render the arm aseptic, to vaccinate, to put on an aseptic pad, and on the eighth day following he has to pay a second visit and if there is any inflammation about the arm he has to treat it. He has then to make entries in his books, to sign certificates, and to send them to the vaccination officer. It must be remembered also that he has to make many futile visits, owing to changes of residence, absences from home, and sickness. We trust that the Local Government Board will give no encouragement to this proposed lowering of the remuneration for what is in reality very responsible work very efficiently performed.

THE RELATIVE MERITS OF A CHEMICAL AND BACTERIOLOGICAL EXAMINATION OF WATER

OWING mainly to the recent pollution of the river derived water supplies of the metropolis by the floods, the question has been raised once again as to the relative value of the chemical and bacteriological analysis of water for drinking purposes. It may be useful, therefore, to summarise the position which both methods of examination at present occupy in their bearing upon the detection of pollution. The view that the chemical composition of the water always bears a direct relation to the number of micro-organisms receives very little support unfortunately, from a very large number of experiments that have been made in this direction. It is true that frequently a large number of bacteria is associated with an excess of solid matters, but the same chemical conditions may be found to exist when the number of organisms has diminished to vanishing point. Conversely a water with little or no solid matter may show a considerable number of organisms. Again, there is little doubt that the detection of actual sewage contamination by bacteriological methods is much more delicate and definite than that offered by chemical analysis, though it may not be possible to identify the specific organism. In the case of the typhoid fever outbreak at Maidstone, for example, a bacteriological examination of the infected water made about ten days after the specific infection had taken place failed to demonstrate the existence of the bacillus typhosus, yet there was no doubt at all about the bacillus coli being present. In the Worthing epidemic, again, the specific organism of typhoid fever was not detected in the infected water supply, although the presence of the bacillus coli was readily discovered. It has, in fact, been shown that a recent contamination of a water supply by sewage can easily be detected by bacteriological means even when the pollution is so slight as one part per million, a microscopic degree of pollution which it is very doubtful chemical methods would be able to detect or at any rate to such an extent as to allow of an exact diagnosis being made. The value of bacteriological analysis was largely discounted in the early days of bacteriology by the fact that the number of bacteria was regarded as a basis of decision, while no attention was paid to the determination of the species of bacteria present in drinking water. It is this latter departure in the bacteriological examination of water which has rendered great service in enabling a definite conclusion by bacteriological methods to be drawn as to whether or not a water is polluted. Thus the position is best summed up by saying that whereas chemical analysis may be of value when an exact quantitative analysis is made, in the case of the bacteriological method the analysis should be decidedly qualitative. The two methods, strictly speaking, should go hand in hand, for each is helpful to the other in elucidating the exact history of the water in question. It is well to bear in mind, however, that the purification of water by filtration through sand is essentially a biological process and hence the purifying efficiency of the filtering bed from a pathogenic point of view can only be ascertained by resorting to bacteriological methods of examination. Micro-organisms and not chemical substances are, after all, the real *materies morbi*, and though the presence of chemical substances may, of course, indicate impurity, yet it may not follow that it is of a specifically dangerous kind.

THE DEMONOLOGY OF THE NEW TESTAMENT

IN the July number of the monthly paper of the Guild of St. Luke appears an article by Surgeon Colonel F. H. Welch upon the above subject. Demoniac possession is a favourite subject for discussion for it embraces a certain part of the two sciences of medicine and of theology. But our knowledge of mental processes is exceedingly vague and no one can say how we think. In some cases of insanity or of defective mental process there is some obvious gross lesion, but in how many others is there nothing of the kind? Surgeon Colonel Welch's conclusion is as follows: "I throw in my lot with those who regard demoniac possession as but an expression of old world ignorance, and these examples in the New Testament as but illustrations of mental disorder—insanity in one or other form—clothed in the phraseology and indicative of the beliefs of that day." He allows that with regard to Our Lord's treatment of such cases "there seems no resting ground between denying the Gospel narrative and acknowledging the outcome as miraculous as viewed by our present knowledge and experience." But he goes on to say that possibly an ampler knowledge of the laws of God and Nature in the distant future will remove all these disease cures from the sphere of miracles as now understood by us. This is quite possible, but at present so far as we can see the question is insoluble. It is not of much help to say that the demoniac possession of the New Testament is insanity, for then arises the further question, What is insanity? It cannot be denied that there are forces, both physical and psychical, of which we know little or nothing. A few years ago radio activity was unknown, and in the domain of psychic forces strange things happen "east of Suez" and in out-of-the-way parts of Africa—witness Captain Wellby's experience in Abyssinia upon which we commented in THE LANCET.[1]

DYSPNŒA AFTER REMOVAL OF A TRACHEOTOMY TUBE.

ONE of the most troublesome of the after effects of tracheotomy is the difficulty which is often experienced in removing permanently the tracheotomy tube. The child, for this complication is practically only seen in children, is often able to dispense with the tube for some hours, but suddenly great dyspnœa occurs and if the tube is not re-inserted death may ensue. This dyspnœa may occur during the waking hours, but it is especially prone to appear during sleep, the difficulty of breathing awakening the child. In the production of this dyspnœa two distinct factors seem to be involved. One effect of the long continuance of a tube in the trachea is that it leads to the formation of granulations around the edges of the opening into the air tube and wherever the tube touches the mucous membrane. These granulations offer obstruction to the inflow of air when the tube is not in position, but the insertion of the tube tends to push them aside. Later there may be a true stenosis of the trachea from the contraction produced by the cicatrisation. The other element in the production of the dyspnœa is spasm of the glottis. So long as the tracheotomy tube is in position there is no need for the glottis to be kept open for breathing and therefore, as it has been well put, the usual rhythm of the laryngeal muscles has been interrupted by the enforced cessation of all exercise of function in the larynx due to the tracheotomy. When the tube is removed there is great liability to the production of irregular laryngeal spasm and this is especially likely to occur during sleep, for during the time the child is awake his attention is directed to keeping the glottis in an open position for inspiration, but when the child is asleep this voluntary assistance is withdrawn and the glottis may close. In many cases of dyspnœa after the removal of a tracheotomy tube both these causes share in its production. The principles of treatment of this condition are, in the first place, to take care that the tube is not retained longer than is really necessary, for the stenosis and the muscular spasm are both more likely to develop the longer the tracheotomy tube is employed. In the second place, the spasm tends to pass off as the glottis becomes again active, so that the best plan is to leave out the tube as much as possible, care being taken that it can be re-inserted as soon as necessity arises. This can only be done by having the child watched continuously during the first few nights after the removal of the tube. If granulations are present they must be treated either by removal or by the application of suitable astringents. A very interesting case of dyspnœa after removal of a tracheotomy tube was published in THE LANCET of July 25th, p. 225; in this case intubation was successfully employed to overcome the difficulty of breathing.

---

[1] THE LANCET, Sept. 9th, 1899, p. 731.

THE GOAT AS A PREVENTIVE OF DISEASE.

THE somewhat startling news that the lower classes of Cambridge are trusting to the presence of a goat to protect them and their houses from the infection of small-pox is only another proof that primitive barbarism dies out very slowly even under the shadow of colleges and laboratories dedicated to the highest forms of scientific research. The Cambridge dairyman who sends his goat into and round the dwellings of his neighbours in the area infected by small-pox along the Newmarket-road is said to be giving expression to a rooted local belief. Indeed, he has only extended to human beings the universally-found rustic superstition that goats bring good luck and insure the health of cows and other animals. It is common in Lincolnshire, for instance, to keep a goat on the ground of its being "healthy for cattle." Among old-fashioned cattle-men in Virginia the goat is held to be a preventive of disease and a clearer-away of noxious herbs. In Ulster a goat grazes among the cows of the small farmers in order to bring good luck and to eat poisonous weeds, and on many large dairy farms in the south of England a goat or donkey is sent out with the herd in order, as avowed, to prevent premature calving. Finally, in large London stables a goat is often kept either to lead the horses out in case of fire or for no reason at all. Why are goats kept? and what is their use? A writer in *Notes and Queries*, where the question of the "Goat and Folk-lore" was discussed some years ago, was inclined to the belief that the goat's effluvium kills microbes. But he was met by the objection that *a fortiori* the pig would be the better antiseptic agent of the two. The argument was fallacious, yet the goat is not a microbe-killer. It is probable that his luckiness and health-giving properties have a pagan origin and that he remains symbolically a relic of the days of witchcraft. The witches of the Walpurgis-night rode on goats who were devils in disguise, and "it is possible that goats are placed amongst other cattle because the witches will not hurt animals which are under the protection of their friends." Whatever excuses and explanations are urged nowadays the goat remains a creature of the black art, just as the cuckoo, who still figures in the oaths of German peasants ("*der Kuckuck soll es holen!*"), is properly the bird of (1) the Devil; (2) Woden; and (3) Indra. The goat, by-the-bye, appears in Scandinavian mythology as the carriage-horse of Thor.

THE PROFESSORSHIP OF SURGERY AT THE UNIVERSITY OF CAMBRIDGE.

ON July 27th Mr. Howard Marsh, F.R.C.S., was elected to the chair of professor of surgery in the University of Cambridge in succession to the late Sir George Murray Humphry. Since the death of the late professor seven years ago the professorship has been suspended. We offer our sincere congratulations to Mr. Howard Marsh upon the honour which has fallen to his lot in being chosen to fill such a dignified and responsible post. At the same time we understand that though it is incumbent upon the professor to be in residence during term, Mr. Howard Marsh intends to continue much of his London work, although he will no longer be a member of the active staff of St. Bartholomew's Hospital.

A DANGEROUS PAMPHLET.

WE have received from a medical man a pamphlet entitled "Opium Smoking as a Therapeutic Power according to the Latest Medical Authorities" which had been placed in the hands of one of his patients. It bears on the cover an advertisement of a firm of dispensing and family druggists—Messrs. Gamble and Company, of 4, Edwardes-terrace, Kensington-road, Kensington, W.—and consists of a detailed description of a pipe for opium smoking supplied by this firm, and minute directions for its use. It is difficult to imagine a more pernicious or dangerous document, the avowed object being to encourage the use of opium by patients without any medical supervision in a variety of ailments and in a seductive form in which they are liable to lose sight of the fact that they are drugging themselves until, perhaps, a permanent habit has been acquired. The list of diseases for which this opium-smoking is suggested in this pamphlet comprises, amongst others, all neuralgias, coryza, sciatica, lead colic, pneumonia, peritonitis, "spasmodic attacks of asthmatic breathing affecting patients with kidney disease," gastralgia, "the fidgets," excessive fatigue, excitement, and sleeplessness. The effects and indications for use are described in quasi-scientific terms and one or two authorities are quoted. It is, moreover, stated that a dangerous intoxication by opium vapour cannot be reached by the smoker at his will, and the use of the drug in this manner is referred to as "this splendid and safe therapeutic agent." The little reverses which happen to beginners are described and directions are given how to overcome or to avoid them. The apparatus, which is somewhat complicated, is made up in sets, and an italicised note at the end of the pamphlet states, "these sets of apparatus and sterilised extract have been supplied to many patients for several years past and have been sent by Gamble and Co. to all parts of the world." The pamphlet is dated 1886 and has thus been in circulation for 17 years and is presumably still distributed. We have no intention to decry the use of opium in the form of inhalation as a therapeutic agent when recommended after due deliberation by a medical man, although it is little used in this country, but the irresponsible advertisement by druggists comparable to that of a patent medicine is on all grounds most strongly to be deprecated. That opium is a very useful remedy in some of the diseases mentioned is, of course, an undoubted fact, but there are few medical men who would order opium in any form for neuralgia or for asthma, more especially the asthmatic dyspnœa of chronic renal disease, without very careful consideration of the dangers, while its use in lead colic or in some forms of abdominal disease and peritonitis may be more immediately harmful. No better example of the evils of the present extensive advertisement of medical preparations, proprietary and otherwise, without any restriction is needed and we hope that the firm of druggists above mentioned will at once withdraw so improper a document from circulation if they have not already done so.

THE DISTRIBUTION OF PLAGUE.

As regards the Cape Colony the medical officer states that for the week ending July 4th the condition of the various places mentioned below was as follows. At Port Elizabeth 1 case of plague was discovered during the week—namely, 1 native male on June 29th. At the Plague Hospital 1 native male died, leaving 6 cases under treatment. Plague-infected rats continued to be found in the town. At East London no case of plague was discovered. At the Plague Hospital no patients died or were discharged during the week; 5 cases remained under treatment. At King William's Town no case of plague was discovered. At the Plague Hospital no patients died or were discharged during the week; 5 cases remained under treatment. Plague-infected rats continued to be found in the town and were also found in the village of Kei-road. At Graaff-Reinet and also at Burghersdorp no case of plague and no plague-infected rats were found. At Queenstown *a native male who died with symptoms of pneumonia on* June 25th has since been found to have suffered from plague. During the week 3 cases of plague were discovered—namely, 2 native males and 1 native female, all of whom died. At Stockenstroom and also at Riversdale no case of plague in man or animals was discovered. As regards Hong-Kong the Colonial Office has received information that for the week ending July 18th there were 18 cases of plague and 9 deaths from the disease, while for the week ending July 25th there were 13 cases and 11 deaths. As regards Mauritius the Colonial Office has received information that for the week ending July 23rd there were 4 cases of plague and 3 deaths from the disease.

ST. BARTHOLOMEW'S HOSPITAL.

THE report of the Mansion House committee, a committee nominated by the Lord Mayor in pursuance of a resolution passed at a meeting of the appeal committee of the governors of the hospital held at the Mansion House on Jan. 19th, has just been published. The committee has come to the following conclusions. With regard to removing the hospital from its present site it considers that it is impossible in the public interest to entertain such an idea. With regard to the buildings the committee states that it is satisfied that important additions to, and a considerable rearrangement and improvement of, the existing buildings are necessary and it considers that with the additional land purchased from Christ's Hospital there will be ample room for the provision of a hospital with every modern appliance. The method proposed is that of a gradual building scheme under which the improvements and alterations contemplated can be secured as soon as funds are obtained. With regard to the financial position of the hospital the committee states that the evidence showed that its properties and revenues are judiciously and economically administered and that the cost per bed compares favourably with that of other hospitals, but it also finds that it is impossible to hope that funds for the additions to, and rearrangement of, the hospital can be obtained from the resources of the hospital itself. It therefore considers that the governors of St. Bartholomew's Hospital are fully justified in appealing to the public for assistance and it heartily commends this appeal to the consideration of the citizens of London and of the public generally. The committee does not think that it would be justified in concluding its functions without placing upon record its opinion that from the evidence brought before it the administration of the hospital has been conducted by the governors in a wise and enlightened spirit with due regard to economy and in the best interests of the patients.

THE INDIAN MEDICAL SERVICE.

WE are glad to receive official information to the effect that proposals for improving the pay and general condition of the Indian Medical Service have now been formulated by the Government of India and that they will shortly be taken into consideration by the Secretary of State for India in Council. It is hoped that the revised terms will be published in September.

WITH reference to the annotation under the heading "Insanity and Racial Fecundity" published in THE LANCET of June 20th, p. 1757, we have been informed that Dr. John Macpherson fell into an error in quoting some of the figures given in his article as he counted the lunatics (as distinguished from idiots) twice over in his total. He gave the numbers of all lunatics and idiots under official cognisance in Ireland as 28,187 in 1881, 36,133 in 1891, and 44,884 in 1901, but the correct numbers were 18,413 in 1881, 21,188 in 1891, and 25,050 in 1901.

THE Royal Medical and *Chirurgical Society's Library will* be closed during the whole of the month of August for necessary cleaning.

Dr. H. E. W. Hoffmeister has been appointed by Princess Henry of Battenberg Surgeon-in-Ordinary to Her Royal Highness.

HOME FOR PATIENTS SUFFERING FROM LUPUS.—An interesting work is being done in the Mile End-road by Mrs. Freeman. This lady has rented the upper part of a house and has a set of comfortable rooms for poor patients who are suffering from lupus and who are undergoing the Finsen light treatment at the London Hospital. Mrs. Freeman is to be commended for the earnest way in which she has undertaken this responsibility and we hope that friends will be forthcoming to enable her to carry on the work that she has so well begun. At the low rate of charge that is made for board and lodging it is impossible to cover expenses, therefore Mrs. Freeman appeals to the generosity of the public.

DONATIONS AND BEQUESTS.—The executors of the late Mr. Richard Bishop have allotted £500 to the Chelsea Hospital for Women, £300 to the building fund of the North-Eastern Hospital for Children, Hackney, and £300 to the Hampstead General Hospital.—Under the will of Mr. A. A. Haclin the sum of £800 is bequeathed to each of the following hospitals: King's College Hospital, Great Northern Central Hospital, Middlesex Hospital, University College Hospital, Royal Free Hospital, French Hospital and Dispensary, London Temperance Hospital, Central London Ophthalmic Hospital, Westminster Hospital, St. Mary's Hospital, Hospital for Consumption, Brompton, Charing Cross Hospital, London Hospital, Cancer Hospital, Brompton, St. Thomas's Hospital, and St. Bartholomew's Hospital.—Mr. Charles Lucena of Westwick, Easthampstead, has by his will bequeathed £200 to the Royal Berkshire Hospital and £200 to the Home for the Dying at Clapham.—By the will of Mr. M. W. Hughes of Dublin a sum of £500 has been left to each of the following hospitals: St. Vincent's Hospital, Dublin; Mater Misericordiæ Hospital, Dublin; Jervis-street Hospital, Dublin; St. Michael's Hospital, Kingstown; City of Dublin Hospital; Meath Hospital, Dublin; Sir Patrick Dun's Hospital, Dublin; the Fever Hospital and House of Recovery, Dublin; Dr. Steevens' Hospital, Dublin; and the Mercers' Hospital, Dublin.

THE
CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

(FROM A SPECIAL CORRESPONDENT.)

(Concluded from p. 256.)

THE proceedings of this Congress, which commenced on July 15th, came to a close on July 21st.

III.—SECTION OF BACTERIOLOGY AND COMPARATIVE PATHOLOGY.

An important discussion upon

A Uniform Scheme of Examination to be adopted in the Bacterioscopic Analysis of Water

was initiated by Dr. SAVAGE (medical officer of health of Colchester) who dealt with the subject under four headings —viz., (1) the collection and transmission of the samples; (2) the data to be ascertained; (3) the processes and procedures of the examination; and (4) the interpretation of the results. With regard to (1) he detailed the precautions usually adopted, but stated that he was by no means sure that ice-packing preserved the bacterial content unaltered. As regards (2) he suggested (*a*) number of aerobic organisms per cubic centimetre developing at low temperature—e.g., room temperature to 22° C.; (*b*) number of aerobic organisms per cubic centimetre developing at 37° C.; (*c*) investigation as to the presence of certain organisms especially liable to be associated with sewage or fæcal contamination, such as bacillus coli communis, bacillus enteritidis sporogenes, streptococci, and proteus organisms; and (*d*) examination for bacillus typhosus and spirillum choleræ. As regards (3) he thought that some uniformity might be come to concerning the temperature of incubation, date of counting the colonies, and reaction of the culture medium, but he did not consider they were yet in a position to suggest a standard method for the qualitative examination for bacillus coli and for bacillus enteritidis sporogenes; it had yet to be determined whether cultural characters alone were sufficient or whether the inoculation test in addition was necessary. He was averse to setting up arbitrary standards as the kind of water under examination was of importance, but with uniformity of methods it was possible to have very satisfactory standards for the different classes of water. In conclusion, he advocated the formation of a committee to consider the question.

Dr. G. LESLIE EASTES (London) thought that there was urgent need for the standardisation of methods and that the time was ripe for some agreement to be come to among bacteriologists. He pointed out the differences obtained by using plain gelatin and nutrient gelatin as a plating medium and then discussed the methods for the isolation of bacillus coli, of which he considered Pakes's glucose formate broth the most delicate and satisfactory.

Mr. F. J. TANNER (Bournemouth) considered that some uniformity in method and procedure was urgently required and that the necessity of periodical and futility of casual examinations could not be too strongly impressed upon those responsible for our water-supplies.

Professor R. T. HEWLETT (London) pointed out that the chemists had arrived at a more or less uniform procedure and half a dozen chemists examining the same water would probably all adopt the same method and would obtain the same figures. He thought that some scheme might be formulated to obtain uniformity among bacteriologists and advocated the formation of a committee to consider the question. For the bacillus enteritidis sporogenes he did not think inoculation desirable as there were non-virulent varieties.

Professor R. W. BOYCE (Liverpool) thought that the chemists had stood still because they were content with their methods. He was doubtful of the value of bacillus enteritidis sporogenes or other sporing forms in the bacteriological examination of water.

Dr. GLYNN (Liverpool) agreed with Professor Hewlett that there were non-virulent forms of the bacillus enteritidis sporogenes.

Dr. EASTES then moved—

> That a committee of bacteriologists be appointed to consider the question and report to the next Congress.

This was carried unanimously.

The Nature of the so-called Pseudo-Diphtheria (Hofmann) Bacillus and its Significance (if any) in the Bacteriological Examination for Diphtheria.

A discussion on this subject was opened by Dr. LOUIS COBBETT (Cambridge) who concluded that the bacillus of Hofmann differed fundamentally from the diphtheria bacillus in producing no acid out of glucose. It was very widely distributed and was no commoner in "contacts" with diphtheria than in persons from healthy districts. Even when the bacillus was taken from convalescent patients it never had any virulence for the guinea-pig. It was not agglutinated by a serum which agglutinated the diphtheria bacillus and the non-virulent diphtheria bacillus. It formed neither toxins nor toxoids. The published instances were too few to prove the conversion of Hofmann's bacillus into the diphtheria bacillus and *vice versâ*. There were no sufficient reasons for concluding that the bacillus of Hofmann had any relation whatever to diphtheria or to the diphtheria bacillus. The diphtheria bacillus in all probability, when attenuated, became converted, not into Hofmann's bacillus, but into what was now generally called the non-virulent diphtheria bacillus, retaining its power of forming acids out of suitable sugars.

Mr. TANNER, after detailing the characters of the Hofmann bacillus, said that he had been impressed by the frequency with which this organism was met with in throat swabs, how it only might be found at first, was then succeeded by the Klebs-Löffler bacillus and this again was replaced by the Hofmann bacillus during convalescence. He had met with many cases with throat symptoms which had yielded the Hofmann bacillus; should such cases be considered infectious and should they be isolated? In Bournemouth the practice was to regard such cases as infectious *pro tem.* and to examine them repeatedly; if they were sent to the infectious hospital they were placed in isolation wards and not in the diphtheria ward unless Klebs-Löffler bacilli were found. As the result of his experience he could not help thinking that the Klebs-Löffler and Hofmann bacilli were in some way related and he gave several histories of cases in support of this view.

Mr. J. O. HEAVEN (deputy medical officer of health of Bristol) as the result of several thousand examinations considered that the Hofmann bacillus could cause disease which might resemble diphtheria closely, even to fatality. He had had 25 children yielding only the Hofmann bacillus treated in the ordinary wards with cases of diphtheria and not one had contracted diphtheria. In conclusion, he submitted that "Hofmann and pseudo-contacts" should be treated, should be placed under a reasonable amount of restraint, and certainly should be excluded from school attendance.

Mr. E. C. BOUSFIELD (Camberwell) said that it was his invariable practice to return as diphtheritic all cases in which a "diphtheroid" bacillus was found, and no proof had yet been offered in his opinion that the Hofmann bacillus was not a variety of the Klebs-Löffler bacillus, and he pointed to the great variation occurring with other organisms, e.g., bacillus coli and bacillus enteritidis (Gärtner).

Professor STANLEY KENT (Bristol) gave the histories of two cases which had been under his observation. One had a typical attack of diphtheria which ran a mild course, was benefited by antitoxin, and was followed by palatal paralysis. Repeated examinations of the throat and nose showed Hofmann bacilli only in pure culture; the Klebs-Löffler bacillus was never found. The other case had a severe attack of diphtheria which ended fatally. Again, the Hofmann bacillus only, and not the Klebs-Löffler bacillus, was found on repeated examinations. He said that he had little doubt that the Hofmann bacillus was capable of producing symptoms of diphtheria and of spreading the disease.

Dr. BUCHANAN (Glasgow) was surprised that Dr. Cobbett absolutely distinguished between the two bacilli, the Hofmann and the Klebs-Löffler; in his opinion there were a series of transitional forms connecting the two. During the course of the illness there was a universal tendency to a change of type towards the Hofmann bacillus. He did not think that it would be possible to exclude all children with Hofmann bacilli from school, but they should certainly be excluded if they complained of throat symptoms.

Dr. W. A. BOND (London) and Dr. LOW (London) insisted upon the early use of antitoxin if there were any exudation.

Professor HEWLETT said that he was one of those who held that the Hofmann bacillus was a modified Klebs-Löffler bacillus, but he was quite ready to change his opinion should clear proof be furnished that this view was wrong. This he did not think had yet been done. He then drew attention to several points of similarity between the two organisms and said that his view of their relationship was that the Hofmann bacillus was far removed from virulence—i.e., very non-virulent, if such an expression could be used.

Some Observations upon the Bacteria of the Water of Public Swimming Baths.

Dr. GLYNN and Dr. MATTHEWS (Liverpool) communicated a paper upon this subject of important and public interest. They found that the first-class baths contained less bacteria than the second-class and that the number of bacteria rose as bathing went on throughout the day. They estimated that a first-class bather introduced 4,000,000,000 and a second-class bather 6,000,000,000 microbes into the water. Fully-dressed persons walking along the edge of the bath were also responsible for a serious bacterial pollution through the dirt on their boots.

Professor MOORE (Liverpool) read a paper upon

A Chemical Theory of the Propagation and Development of Certain Infectious Diseases,

in which he suggested that in certain instances where no microbes had been detected a chemical agent similar to an enzyme might be the cause. To account for the reproduction of this "catalyser" he pointed out an analogy in certain chemical reactions and suggested that not only did this catalyser cause the symptoms of the disease but at the same time induced certain cells to produce more of itself, so that fresh infection of other individuals became possible.

The theory was criticised by Sir MICHAEL FOSTER (Cambridge), Dr. COPEMAN, Dr. A. S. F. GRUNBAUM (Liverpool), Professor HEWLETT, and Dr. NASH.

The Germicidal Action of Alum upon the Typhoid Bacillus.

Dr. H. S. WILLSON (London) communicated some experiments which he had made in this direction. In distilled water 1 per cent. of alum had little or no effect. In ordinary water or turbid river water alum had a remarkable clarifying effect and produced an enormous diminution in the number of water bacteria in an amount of 35 grains to the gallon. Upon typhoid bacilli being added to the water, however, the alum again had little or no effect.

Dr. DEAN and Dr. TODD (London) communicated a paper upon

The Susceptibility of the Pig to Human Tuberculosis.

In the six experiments which they had made the animals were all infected with the human bacillus, the infection being at least as severe as that described by Professor Koch as the result of the inoculation of the pig with the bovine bacillus.

Dr. H. E. ANNETT (Liverpool) read a paper upon

Tuberculous Expectoration in Public Thoroughfares,

in which he drew attention to the dissemination of tubercle bacilli by the filthy habit of spitting. He had found that tuberculous sputum exposed to sunlight remained virulent up to 24 hours but not for 48 hours. Of 105 specimens of expectoration collected from the streets five contained virulent

Infection of Bovines with Human Tuberculosis.

Professor YOUNG, F.R.C.V.S. (Aberdeen), described some experiments performed by Professor Hamilton and himself upon 20 calves which left no doubt that the human tubercle bacillus could be inoculated upon bovines. He had no doubt that bovine tuberculosis could be transmitted to man and that the milk was the most potent factor in this transmission.

Milk-supply of Large Towns.

Mr. LLOYD, M.R.C.V.S. (Sheffield), drew attention to the objectionable manner in which the cows and milk were kept and treated, to the sources of contamination, to the effects of food and the operation of milking upon the quality of the milk, to adulteration, and to the measures to be taken to protect the milk-supply. The two foregoing papers were followed by an interesting discussion.

The Influence of Surroundings and Locality upon the Recurrence of Malignant Disease.

Mr. D'ARCY POWER (London) invited opinions upon this question and asked whether, after an operation for malignant disease, it was advisable or inadvisable to send a patient back to his old house and former surroundings. Some striking instances were quoted in which recurrence took place when patients were sent back to their old surroundings and did not do so when a complete change in former habits, &c., was made. The paper was published in full in THE LANCET of July 25th, p. 221.

Papers were also read by the following: Dr. A. C. COLES (Bournemouth) upon the Resistance of Acid-fast Bacilli to Decolourising Agents; Dr. R. LORD (London) upon Acetozone, a New Germicide; Dr. J. W. W. STEPHENS (Liverpool) upon Staining Bacterial Flagella with Silver; Mr. K. WELLDON GOADBY (London) upon a Card Index for Bacteriological Work; Dr. COPEMAN upon an Outbreak of Cow-pox; and Mr. STAFFORD JACKSON upon Diseases of Animals Communicable to Man.

IV.—SECTION OF TROPICAL SANITATION.

Dr. A. NELL read a paper on

Hygiene in West African Mining Camps.

He emphasised those elementary methods of promoting individual and general hygiene so well understood in India and Ceylon but which up to the present had been completely neglected in Africa. He pointed out how apparently trifling details made the difference between a healthy and an unhealthy station.

The Prevention of Malaria on Shipboard.

Mr. EVANS of the Elder-Dempster Line said that so long as the taking of quinine was a voluntary matter, so long would malaria remain on shipboard. It would be wise to have a Board of Trade regulation to insist upon a regular "quinine parade." Officers and men should be educated as to the value of quinine and as to the mosquito theory. It would be difficult to exclude mosquitoes altogether from ships, hence the value of quinine.

Dr. C. CHRISTY (Liverpool) discussed the measures to be directed against the mosquito and the value of the system of the segregation of Europeans and exclusion of natives. The last he described as being the only measure which afforded the traveller any real hope of safety.

Other communications were made by Dr. MCCULLOCH upon Proper Medical Supervision upon Indian Railways and by Mr. J. CANTLIE (London) upon the Dissemination of Plague by Animal Food.

V.—SECTION OF MUNICIPAL HYGIENE AND SANITARY LEGISLATION.

Sanatoriums for Tuberculosis.

A discussion upon the Provision of Sanatoriums for Consumptives was opened by Professor W. R. SMITH (London) who saw great difficulty in compulsory notification, the isolation of consumptives, and the provision of adequate accommodation for tuberculous patients.

Mr. MAXWELL LAWFORD (London) read a paper upon

The Application of Pneumatic Power to Works of Municipal Hygiene,

and discussed the growing tendency to make use of pneumatic power in connexion with water-supply and sewerage.

Mr. MORESBY WHITE discussed

Recent Sanitary Legislation,

and dealt with the necessity for the simplification of legislation and of the various legal powers of sanitary authorities. *"Open Spaces" and "Garden Cities" were the titles of* other communications.

VI.—ENGINEERING SECTION.

Professor HELE SHAW (Liverpool) presided over this section and in an interesting address dealt with the subject of road traction and with the importance of increasing the speed of road vehicles.

Professor BOYCE read a short paper on

Sewage Effluents and the Construction of Filter-beds.

He advocated the bacteriological treatment of sewage and explained the system adopted by the Liverpool corporation. In the course of subsequent discussion the system commended by Professor Boyce and that of precipitation were considered.

VII.—SECTION OF CHILD STUDY AND SCHOOL HEALTH.

Professor C. S. SHERRINGTON (Liverpool) presided over this section.

Child Study.

Mr. H. HOLMAN, H.M.I., of Bury opened a short discussion on the subject of Child Study: its Scope and Method in Education. He contended that the majority of parents made a great and cardinal mistake in treating a child as a man in miniature. A child was only so inasmuch as he went through stages of progress in new knowledge which were repeated in adults who attacked any new form of study. True child study needed very high qualifications and from a medical point of view an infant needed vastly different treatment from a grown person. He urged upon all school teachers the great necessity of attaining a definite knowledge of the science concerning the human being and of making themselves familiar with both the physiology and psychology of child life. Hitherto great danger had arisen through the medical man dictating to the educationist and the educationist in turn dictating to the medical man.

A brisk discussion arose on the question of the introduction of military drill into schools which, on physical grounds, was strongly advocated by Captain J. C. ROBERTSON who urged that systematic physical training should be an integral part of education in all schools under public authority and maintained that of the various methods of physical culture military drill had been proved by experience to be the simplest and the best.

VIII.—SECTION OF PORT SANITARY ADMINISTRATION.

Alderman D. CLARKE (Liverpool) in his presidential address referred to the work done by the port sanitary authority of Liverpool, especially in regard to the checking and preventing of the introduction of sea-borne infectious disease.

Inspection of Food at the Port of London.

Dr. HERBERT WILLIAMS (London) read a paper on this subject. Looking at the large proportion of food which was rapidly perishable, careful inspection, he said, was of first importance and there should be ample powers for seizure, condemnation, and destruction.

Dr. PRINGLE followed with a Plea for Community of Action among Port Sanitary Authorities, Alderman S COHEN (Hull) with a paper on the Port Sanitary Authority and its Relation to Emigrants, and Mr. R. SHERITON HOLMES (River Tyne) on the Question of the Payment of Delegates' Expenses.

IX —LADIES COMMITTEE AND SECTION OF DOMESTIC SANITATION.

Elementary School Hygiene, by Mrs. BULNOIS; Anti-Faddism, by Miss A H. A. BOYLE, M.D. (Brighton); Sterilised Milk, by Miss HEALD; and the Care and Feeding of Infants, by Miss KATE MARION HUNTER, L.S.A. (London), were some of the subjects discussed in this section.

SANITATION IN WEST AFRICA.

At the termination of the proceedings of the Congress of the Royal Institute of Public Health at Liverpool on July 21st an important conference of West African merchants and others was held at the Exchange Station Hotel. The conference was preceded by a luncheon given by Sir Alfred Jones, K.C.M.G., who, however, was unable to preside, and in his absence the chair was occupied by Mr. H. Cotterell, chairman of the African Association. After explanatory speeches by the chairman, Major Ronald Ross, and Mr. John Holt, the following motions were agreed to unanimously:—

1. That a fully qualified medical officer of health with an adequate sanitary staff should be appointed to each of the principal West African towns whose sole duty it shall be to attend to sanitary matters in those towns.

2. That there should also be appointed for all the West African colonies an expert sanitary commissioner, on the Indian model of sanitary organisation, the duties of the said commissioner being as follows: (*a*) To spend at least half the year in visiting as many parts of the said colonies as possible for the purpose of inspecting and reporting upon the state and progress of sanitation in them, such report being made direct to the Colonial Office as well as to the Government of each colony; (*b*) to supervise the sanitary statistics and to advise the Colonial Office regarding sanitary measures of importance.

3. That the Colonial Office be asked to publish annually a sanitary report containing reliable statistics of the sickness and mortality, especially among Europeans, in the said colonies, and also giving details of the sanitary work done in them, such report to be of the nature of the annual report published by the Sanitary Commissioner of the Government of India, and that a copy of these resolutions be sent to Mr. Chamberlain.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 30, 18[illegible]

THE ancient physicians, it would appear from CELSUS,* knew but little of operative midwifery, and were consulted for the most part, only, when the loss of the child was certain, and the recovery of the parent doubtful; and as such cases probably occurred but seldom, the imperfection of their knowledge is not to be wondered at, since they necessarily wanted experience, and the *tact* acquired by practice, by which alone the art could have been well understood, successfully practised, or materially improved. During the dark ages which succeeded to the downfall of the Roman empire but little was done towards the improvement of midwifery; and until the middle of the seventeenth century, when male practitioners of the obstetric art first came into vogue in ordinary cases, no decided addition had probably been made to the knowledge of the ancients—"It is pretty generally known," says Dr. Davis, "that the Duchess de la Viliere, a favourite mistress of Louis the Fourteenth of France, was the first female who was induced to place herself under the exclusive obstetric care of a professor of surgery, independent of any anticipated necessity for a surgical operation. That event took place in December, 1663; and Julian Clement, the fortunate attendant upon the case, was soon after appointed to the new and lucrative office of Midwifer to the Princesses of France." Clement advanced the practice of midwifery, but introduced no improvements into the instrumental part of the art; nor "were any accessions of this kind made to it for near half a century after his time." Improvements, however, beginning to multiply, a prodigious clamour was raised by the female practitioners, who accused the surgeons (and probably with justice) of an undue attachment to the use of instruments; indeed the clamour to the present day has not wholly subsided. The forceps and vectis, being employed unnecessarily, were afterwards disregarded where they were indicated, like some of the contrivances and remedies of our own day, which, being overrated at first, are sooner or later entirely abandoned. No doubt labour is a natural and not a morbid process—that the resources of unassisted nature are generally sufficient, and that the interference of art (in ninety-nine cases of a hundred) is at best but auxiliary and trifling; still as anomalous cases, and cases of difficulty and danger, may and do occur, it is certainly incumbent on those who may practise this branch of the profession, to capacitate themselves for acting with promptitude in every case to which they may be called, without trusting to the chances (which undoubtedly are much in their favour) of having little to do. Thus, although a fatal issue may not always be inevitable, yet it will seldom occur, and if it do, a consciousness of having done the utmost for the patient will be the best and only solid satisfaction the practitioner can have.[1]

---

* Lib. vii. Cap. xxix. This author speaks only "of the method of extracting a *dead* fœtus," and apparently knew no instrument but the crochet. HIPPOCRATES and GALEN were equally uninformed.

[1] Excerpt from Review of *Elements of Operative Midwifery* by DAVID D. DAVIS, M.D., Member of the Royal Colleges of Physicians of London and Edinburgh and Lecturer on Midwifery. London, 182 Hurst, Robinson, and Co. and S. Highley.

MEDICINE AND THE LAW.

Anthrax and Accident.

IN a case under the Workmen's Compensation Act at Kidderminster the county court judge has held that anthrax infection is an "accident" within the meaning of the Act and that the widow of a workman who died from anthrax acquired when sorting Persian wool for his employers is consequently entitled to compensation at their hands. The matter is of considerable interest to workmen and employers and probably the Court of Appeal will be called upon for a final decision upon it. The section of the Act gives to the workman compensation for "personal injury by accident arising out of, and in the course of, his employment." It has been held that whether the injury is due to an "accident" or not is a question of mixed fact and law and consequently the Court of Appeal will review the finding of a county court judge on the subject, although it may not be willing to disturb it. In a recorded case an "accident" has been spoken of as something "fortuitous or unforeseen," and it has also been said that "in its ordinary sense the word accident necessarily involves casualty, violence, or *vis major.*" In the case mentioned it was decided that a woman who sustained internal injury through lifting a succession of heavy boxes was not injured by an "accident." The county court judge at Kidderminster held that some force caused the anthrax bacilli from the wool to float in the air and to impinge on the deceased and that this circumstance constituted the infection an "accident."

Houses overlooking Open Spaces.

Under the Metropolitan Open Spaces Acts and under the Disused Burial Grounds Act areas of considerable extent have been thrown open for the public benefit in many parts of the metropolis. They are of use as recreation grounds, where the neighbouring inhabitants and their children can obtain a little fresh air and sometimes look upon green grass and trees, while the houses adjoining and overlooking them enjoy the obvious advantage derivable from facing an open space. The Paddington borough council, however, anxious lest some houses built so as to overlook a large disused graveyard should acquire a prescriptive right to enjoy light and air uninterrupted, erected a hoarding upon the land under its control and an action was brought by those interested in the houses in order to test the council's right to do this. Mr. Justice Buckley's decision was in the council's favour, but the Court of Appeal, consisting of Lord Justice Vaughan Williams, Lord Justice Romer, and Lord Justice Cozens-Hardy, has now taken a different view and the hoarding will have to be removed. As far as we understand, the open spaces made public where there have been burial grounds are intended to remain open spaces for ever; no one may build upon them except where a church has to be enlarged and the borough of Paddington having no power in any case to build on the land in question will not be in any worse position owing to the decision of the Appeal Court. The benefit derivable by a locality from an open space is not confined to the pleasure and recreation of those who resort to it. The houses immediately adjoining it gain considerably and others near it do so to a less degree. It would diminish the utility of such open spaces considerably if unsightly erections were permitted upon them in order to guard rights which no one would ever wish to see exercised. The appeal in the case referred to (Boyce *v.* the Paddington Borough Council, July 25th, 1903) involved not only legal questions of some intricacy but a matter of considerable public importance and no one should regret the decision at which the court arrived.

THE NEW BUILDINGS OF CAMBERWELL INFIRMARY.

THE board of guardians of the parish of St. Giles, Camberwell, S.E., after three years' building operations and at a gross cost of close upon £200,000, opened on July 24th very extensive new infirmary buildings for South London. The old and comparatively small building, which was erected in 1873, has been altered and modernised so as to form part of the institution, which the board wish to be known as Camberwell Infirmary and which, although technically a parish infirmary, must from its position and extent be regarded as really a general hospital, capable of dealing with a large number of accident and acute cases of all kinds. The institution is in Brunswick-square—a well-wooded open space recently acquired for the public, quite near to Camberwell Green and the main highway therefrom to Peckham and New Cross, but sufficiently far away to be out of the noise of the street traffic. It consists of 21 buildings standing on a site of several acres, practically surrounded by roads, all the buildings being connected by glass-covered ways and subways. It will provide accommodation for 800 patients, have a resident staff of five medical men, and officials, nurses, and servants to the number of about 160, with Mr. W. J. O. Keats at their head as medical superintendent. The various erections are built of fire-resisting material and special provision is made for escape in case of an outbreak of fire. The institution contains a fully-equipped operating theatre with recovery-room attached and an electric treatment-room with all modern appliances—"x" rays, galvanic and faradic electrical baths, and all the usual appliances for dealing with diseases of the nervous system. On each of the four floors of three pavilions there is a ward of 24 beds, with windows on three sides, and other wards of six, four, and two beds respectively—so arranged, of course, as to afford opportunity for classification. On every floor a balcony the whole length of the large ward faces west and is sheltered from all cold and side winds. The large ward of the top floor has been specially designed for consumptive patients and practically the whole of the inclosures on three sides consist of opening windows for open-air treatment, there being above a flat roof on which patients may spend all the day with something of interest to see in the panorama stretching for miles across London. This arrangement for consumptive patients is new in the metropolis and so far as is known not yet introduced in any of the general hospitals of the large towns throughout the country. Special attention has been paid to the provision and furnishing of a children's pavilion. The whole institution is electrically lighted; it has electric lifts of a special labour-saving type which are capable of hoisting and lowering beds of full length; it has laundry motors, electric ventilation, and a heating system of a kind believed to exist in only one other institution in London—open fires being allowed for in the sitting-rooms only. The administrative offices are in the centre and so is the nurses' home, in which there are several large rooms for dining, writing, recreation, &c., and to which a pleasant garden is attached.

At the formal opening the architect—Mr. EDWIN T. HALL, F.R.I.B.A., F.S.I.—handed to Mr. Alfred Foster, chairman of the board of guardians, who presided, a key with which to unlock the main door of the administrative building of, he said, this new temple of Hygeia. Mr. FOSTER, in declaring the building open, mentioned that the guardians would get from the Local Government Board £53 000 as its share of the money realised by the sale of what were known as the Sutton Schools. The population of the parish, he stated, had risen from 111,302 in 1873, to 259,339 in 1903, the indoor adults under its charge from 506 to 2167, and the children from 421 to 1028. Mr. WILLIAM T. PARTRIDGE, chairman of the infirmary committee during the last nine or ten years, congratulated the large number of Camberwell ratepayers who had come to take part in the opening ceremony on having secured for their great parish an infirmary capable of doing the work that was to be done. Hitherto they had been much handicapped, but that state of matters was now at an end, and as they were such a long distance from the general hospitals of South London—St. Thomas's and Guy's—they would be able with their accommodation to receive a greater number of acute medical and surgical cases than was usually undertaken by metropolitan infirmaries. 14 years ago they had not a single trained nurse, but of the 64 employed at present—a number to be gradually raised to 116—there was not one who had not passed through the training school. Dr. J. T. MACNAMARA, M.P. for North Camberwell, felicitated everyone concerned on the completion of the buildings. He did not think the money they cost could be better spent, but he thought that the Local Government Board ought to give a very generous contribution towards the cost for the reason that so many people from other districts of London and from the country came into the parish and while getting the [illegible] burdens which the more [illegible] upon to bear. To the poor [illegible] that this large extension of the Camberwell Infirmary must prove an unspeakable boon.

On the motion of the Mayor of Camberwell (Mr. GODDARD CLARKE, J.P., L.C.C.) a vote of thanks was accorded to the chairman, and then Mr. Hall and the stewards led the visitors, in parties of 50, to inspect the buildings.

ASYLUM REPORTS.

County and City of Worcester Asylum (*Annual Report for 1902*).—The average number of patients resident during the year was 1189, comprising 524 males and 665 females. The admissions during the year amounted to 268—viz., 114 males and 152 females. Of these 228 were first admissions. Mr.

G. M. P. Braine-Hartnell, the medical superintendent, states in his report that the ratio of insane patients per 1000 of population in the geographical county of Worcester was 2·87 in 1901, as compared with a ratio of 1·88 in the year 1861. Further inquiries made by Mr. Braine-Hartnell show "that the insane community of Worcestershire during the 40 years (1861–1901) has increased by 481 *beyond or in excess* of the number we should expect, having regard to the natural increase of population." Of the patients admitted during the year only 23 were in good bodily condition, the rest (243 in number) being in indifferent or bad health. The number of patients discharged as recovered during the year amounted to 96—viz., 39 males and 57 females, or 8·1 per cent. of the average number resident. The deaths during the year amounted to 116, or 9·7 per cent. as calculated on the same basis. Of the deaths four were due to renal disease, six to epilepsy, nine each to cardiac disease and pneumonia, 11 to general paralysis of the insane, 16 to colitis, 19 each to senile decay and general paralysis, and the rest to other causes. Post-mortem examinations were made in 94 cases. A married female patient was confined a fortnight after admission. "She still remains," adds Mr. Braine-Hartnell, "a patient." Four patients escaped during the year and all but one were recaptured within a short time. A few cases of measles and typhoid fever occurred in the asylum, affecting both patients and attendants. "Influenza has been rife among the staff and some of the patients have suffered." An outbreak of colitis affected 25 male and 46 female patients. Owing to the prevalence of small-pox in the county the patients and staff were vaccinated. The results were good, as small-pox did not break out in the institution. The average weekly cost of maintenance per patient has been raised from 7*s.* 7*d.* to 8*s.* 2*d.* The Commissioners in Lunacy state in their report that the asylum is overcrowded and that further accommodation is needed, that the wards were bright, cheerful, and comfortable, that the dormitories and bedding were in excellent condition, and that the medical case-books were very well kept. The committee of management states in its report that owing to overcrowding of the asylum it has made contracts with the authorities of Derby and Northampton county asylums to board out 45 patients.

Royal Edinburgh Asylum for the Insane (*Annual Report for 1902*).—The average number of patients resident during the year was 946, comprising 471 males and 475 females. The admissions during the year amounted to 423—viz., 189 males and 234 females. Of these, 329 were first admissions. Dr. T. S. Clouston, the medical superintendent, states in his report that in no less than 119 cases, or 28 per cent. of the admissions, the mental breakdown was attributable to alcoholic intemperance. "This is the highest number that we have ever had sent here as the result of alcoholic excess. It is most sad and discouraging that this preventable cause of the most terrible of all human diseases should thus contrive to increase. It is a veritable plague-spot in our social life." The mean age of those admitted steadily increases, having gone up from 40 years in 1901 to 43·3 years in 1902. No fewer than 56 of the admissions, or 13 per cent., were cases of general paralysis. "This is, with the exception of last year, the largest number of [cases of] this disease we have ever had sent to us, and confirms my remarks in last year's report as to the distinct increase of this deadly disease in this district at least. From having stood low, in regard to this disease 30 years ago, our admission rate is now the highest in Scotland. It, too, like alcoholic insanity must be regarded as a largely preventable scourge of humanity." In addition to these 56 cases of general paralysis, there were 80 patients who suffered from advanced senility and gross brain disease, thus showing that one-third of the admissions were incurable in character from the beginning. The number of patients discharged as recovered during the year amounted to 134, or 14·1 per cent. of the average number resident. The deaths during the year amounted to 138, or 14·5 per cent. as calculated on the same basis. Of the deaths three were due to epilepsy, nine to pneumonia, 16 to pulmonary tuberculosis, 17 to cardiac disease, 19 to senile decay, 42 to general paralysis of the insane, and the rest to other causes. Post-mortem examinations were made in 103 cases. "The most alarming event of the year was an outbreak of asylum dysentery or colitis. ...... We had 27 female cases. ...... I may say that of the whole 27 cases only three could be said to be in anything like fair bodily health and condition before they were attacked by the disease. Seven of the 27 patients died. ...... The epidemic was treated from the beginning by the strictest isolation and disinfection." One possible means of the propagation of the disease was the cats of the ward, two of which were found to be suffering from it. The cats in the establishment were killed on this discovery being made. "My general conclusions in regard to this unfortunate epidemic," adds Dr. Clouston, "are that it was predisposed to by the overcrowded state of the wards, particularly our hospital, the patients being weak and specially susceptible to any disease, that the actual disease was introduced somehow from defective sanitary arrangements, and that, to a certain extent, it was propagated in the house by direct infection." The Commissioners in Lunacy state in their report that "the proportion of deaths [from general paralysis] greatly exceeds the average of the other Scottish asylums and judging from the number of cases suffering from the disease in the wards of the asylum, there is reason to believe that this deadly affection has attained an unprecedented prevalence in the city of Edinburgh." They also state that the condition of the patients was tidy and indicated careful attention on the part of the attendants and nurses, that the dietary was varied and sufficient, that the wards were scrupulously clean, that the sitting-rooms and bedrooms were brightly decorated and well furnished, that the patients had ample opportunities for exercise and recreation, and that the medical case-books and records were found to be carefully and regularly kept. The committee of management states in its report that pending the erection of the Bangour Asylum the district board has arranged to erect temporary accommodation for 150 patients which will, it is expected, be ready for their reception in the course of a few months and will to that extent relieve the overcrowding at the asylum. The cost of maintenance of pauper patients per head has fallen from £33 2*s.* 4*d.* in 1901 to £31 15*s.* 8½*d.* in 1902, being a decrease of £1 6*s.* 7½*d.*

Joint Counties Asylum, Carmarthen (*Annual Report for 1902.*)—The average number of patients resident during the year was 646, comprising 330 males and 316 females. The admissions during the year amounted to 122—viz., 66 males and 56 females. Of these 109 were first admissions. Dr. E. Goodall, the medical superintendent, states in his report that the average age on admission was 40 years for males and 39 years for females. A hereditary tendency to insanity was traceable in 42 per cent. of the admissions, alcoholic intemperance was met with in 15·2 per cent., and senile decay was the cause of insanity in 14 per cent. Of the admissions 37 were more or less actively suicidal and 26 were subject to dangerous impulses. The number of patients discharged as recovered during the year amounted to 32—viz., 20 males and 12 females, or 4·9 per cent. of the average number resident. The deaths during the year amounted to 63—viz., 33 males and 30 females, or 9·8 per cent. as calculated on the same basis. Of the deaths three each were due to epilepsy and senile decay, four to renal disease, seven each to broncho-pneumonia and general paralysis, eight to cardiac disease, 17 to pulmonary and other forms of tuberculosis, and the rest to other causes. Post-mortem examinations were held in 56 out of the 63 deaths. The general health of the institution has been satisfactory throughout the year apart from the undue proportion of cases of pulmonary tuberculosis. "The segregation of cases of consumption is highly desirable, otherwise they act as foci of contagion. There is at present no suitable building available here" for such cases. The average weekly cost of maintenance is between 8*s.* 5*d.* and 8*s.* 9*d.* per patient. "In addition to the more usual means," says Dr. Goodall, "we continue to use the electric bath [in the treatment of patients]. It appears to be the best method of applying the electric current for general purposes and shows itself to be a valuable aid to treatment in certain cases." The Commissioners in Lunacy state in their report that the condition of the patients was satisfactory in matters of dress and personal tidiness, that their behaviour was orderly, and that the medical case-books were very well kept. They recommend that an improved should dietary be adopted for the more poorly nourished patients. They state that the wards and dormitories generally were in a satisfactory condition, that the former were bright and cheerful, and that the latter were sweet and clean. The committee of management states in its report that the new hospital for infectious diseases is being built, but that progress is necessarily slow as asylum labour only is used. The committee has under consideration the adoption of a scheme for pensioning servants who have been in the asylum service for long periods and who are through age incapacitated from fulfilling their duties.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8687 births and 3874 eaths were registered during the week ending July 25th. he annual rate of mortality in these towns, which had een 14·4, 13·7, and 13·5 per 1000 in the three preceding 'eeks, further declined to 13·4 per 1000 last week. In ondon the death-rate was 12·7 per 1000, while it averged 13·7 in the 75 other large towns. The lowest deathates in these towns were 5·7 in Tottenham, 6·3 in Reading nd in Handsworth, 6·9 in Walthamstow, 7·0 in Northmpton, 7·1 in East Ham, 7·2 in York, and 7·3 in Hornsey; ie highest rates were 18·0 in Liverpool, 18·2 in Ipswich, 8·9 in Warrington and in Burnley, 19·1 in Stockport nd in St. Helens, 19·2 in Bolton, and 20·6 in Bury. he 3874 deaths in these towns last week included 31 which were referred to the principal infectious iseases, against 436, 441, and 473 in the three receding weeks; of these 531 deaths 225 resulted om diarrhœa, 111 from measles, 74 from whoopingough, 49 from diphtheria, 40 from scarlet fever, 27 om "fever" (principally enteric), and five from smallox. No death from any of these diseases was registered ist week in Hornsey, Tottenham, Hastings, Bournemouth, outhampton, Reading, Devonport, Burton-on-Trent, Handsorth, King's Norton, Derby, or Stockton-on-Tees; the ighest death-rates from the principal infectious diseases ere recorded in Stockport, Birkenhead, Bootle, Warringon, Burnley, Leeds, Sheffield, Tynemouth, and Rhondda. he greatest proportional mortality from measles occurred n *Ipswich, Aston Manor, Stockport, and Sheffield; from* hooping-cough in Willesden; from "fever" in Bootle; and rom diarrhœa in Birkenhead, Bootle, Warrington, Bury, ateshead, and Tynemouth. The mortality from scarlet fever nd from diphtheria showed no marked excess in any of the arge towns. Small-pox caused one death in Smethwick, ne in Liverpool, one in Leeds, one in Hull, and one in Newcastle-on-Tyne, but not one in any other of the 6 large towns. The Metropolitan Asylums hospitals conained 71 small-pox patients on Saturday last, July 25th, gainst 57, 77, and 71 on the three preceding Saturdays; 12 ew cases we , against four, 31, nd seven in The number of carlet fever hese hospitals and n the London Fever Hospital, which had been 1646, 1700, nd 1710 at the end of the three preceding weeks, had urther increased to 1711 at the end of last week; 229 ew cases were admitted during the week, against 241, 53, and 243 in the three preceding weeks. The deaths eferred to diseases of the respiratory organs in London, which had been 164, 127, and 115, in the three preceding weeks, rose again last week to 130, but were 26 below the number in the corresponding period of last ear. The causes of 41, or 1·1 per cent., of the deaths n the 76 large towns last week were not certified either by registered medical practitioner or by a coroner. All the auses of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Bradford, Leeds, and in 48 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, St. Helen's, Blackburn, Sheffield, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·3, 16·2, and 15 2 per 1000 in the three preceding weeks, rose again to 15 4 per 1000 during the week ending July 25th and was 2 0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 11·1 in Leith and 12·0 in Greenock to 16·9 in Glasgow and 19·5 in Paisley. The 503 deaths in these towns included 34 which were referred to diarrhœa, 11 to whooping-cough, seven to measles, six to "fever," and four to scarlet fever, but not one to either small-pox or diphtheria. In all, 62 deaths resulted from these principal *infectious diseases last week, against* 59, 82, and 57 in the three preceding weeks. These 62 deaths were equal to an annual rate of 1·9 per 1000, which was 0 1 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 17, 31, and 22 in the three preceding weeks, rose again last week to 34, of which 11 occurred in Glasgow, nine in Edinburgh, five in Dundee, three in Paisley, two in Aberdeen, and two in Greenock. The deaths from whooping-cough, which had been 18, 18, and 15 in the three preceding weeks, further declined to 11 last week and included six in Glasgow and four in Edinburgh. The fatal cases of measles, which had been 13 and 11 in the two preceding weeks, further decreased last week to seven, of which four were registered in Glasgow and two in Paisley. The deaths referred to different forms of "fever," which had been six, nine, and three in the three preceding weeks, rose again to six last week and included three in Glasgow and two in Edinburgh. Of the four fatal cases of scarlet fever three occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 86, 90, and 73 in the three preceding weeks, rose again last week to 79, but were slightly below the number in the corresponding period of last year. The causes of 14, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 17·2, 18·0, and 16·0, per 1000 in the three preceding weeks, rose again to 17·5 per 1000 during the week ending July 25th. During the past four weeks the death-rate has averaged 17·2 per 1000, the rat London and 15 2 belonging to Dubl showed an excess of 11 over the number in the preceding week and included nine which were referred to the principal infectious diseases, against five, two, and six in the three preceding weeks; of these, three resulted from whooping-cough, two from small-pox, and one each from measles, scarlet fever, "fever," and diarrhœa, but not one from diphtheria. These nine deaths were equal to an annual rate of 1·2 per 1000, the death-rates from the principal infectious diseases last week being 1·4 in London and 2·7 in Edinburgh. The fatal cases of whooping-cough, which had been one in each of the two preceding weeks, rose last week to three. Two deaths from small-pox were registered, against one in the preceding week. The 127 deaths in Dublin last week included 13 of children under one year of age and 37 of persons aged 60 years and upwards; the deaths of infants showed a decline of 11, and those of elderly persons an excess of eight, as compared with the respective numbers recorded in the preceding week. Four inquest cases and five deaths from violence were registered and 47, or more than a third, of the deaths occurred in public institutions. The causes of three, or more than 2 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet Surgeon Samuel Keays has been placed on the retired list of his rank at his own request. Dated July 14th, 1903.

The following appointments have been notified:—Surgeons: H V. Wells to the *Dwarf* and G. F. Alderdice to the *Hogue*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J Armstrong retires on retired pay. Dated July 29th, 1903. Captain R T. Brown is placed on temporary half-pay on account of ill-health. Dated May 13th, 1903.

Lieutenant Crossley and Lieutenant Harding are posted for duty to the Station Hospital, Shorncliffe, and the Station Hospital, Western Heights, Dover, respectively.

VOLUNTEER CORPS.

Rifle: 1st Nottinghamshire (Robin Hood): Surgeon-Lieutenant J. B. Roberts to be Surgeon-Captain. Dated June 27th, 1903. 2nd Volunteer Battalion the Prince of Wales's (North Staffordshire Regiment): Surgeon-Major H. J. Fausset to be Surgeon-Lieutenant-Colonel. Dated July 25th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Manchester Companies: George Fyfe Waterson to be Lieutenant. Dated July 25th, 1903.

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

5th London: Surgeon-Captain J. G. Fraser, 19th Middlesex Volunteer Rifle Corps, to be Captain and to command under paragraph 55A Volunteer Regulations. Dated July 25th, 1903.

SUNSTROKE: A CALAMITOUS MARCH.

The Vienna correspondent of the *Standard* furnishes some particulars regarding a calamitous occurrence which recently befell some troops engaged in military field operations in Herzegovina. According to the description published in that journal of July 27th it appears that two battalions of the 12th Austro-Hungarian Infantry made a march of some 20 miles and had a sham fight on the way with the garrison of Bilek. This small force suffered so severely from sunstroke that the losses attending these military manœuvres were as serious as in war itself. The mid-day heat was very great, the country mountainous, without shade or water, and the men marched with field service equipment, each man carrying about 50 *pounds. According to reports in the Hungarian papers more* than 400 soldiers fell out and were left lying on the road, while the War Office admits that no fewer than 15 died from sunstroke and that about 40 more were taken, partially unconscious and in a critical condition, to hospital, while another 60 are suffering less seriously from the effects of sunstroke. The matter has naturally caused a good deal of adverse criticism and the conduct of the military authorities will no doubt be made a subject of official inquiry.

THE ARMY AND NATIONAL PHYSIQUE.

This subject continues to occupy attention and its importance is beginning to be fully recognised. It is the alleged physical degeneration of the class which provides the bulk of our soldiers that mainly concerns us, when the unskilled labouring class is no longer content to remain in rural districts but migrates to large towns and only adds to the existing overcrowding and all the other evils to be found in city slums. Although it is undeniable that a system of national training can do much it manifestly cannot do everything. In cases where the conditions have throughout been exceptionally unfavourable—from infancy upwards to early manhood—it is too late to expect that all the results can be effaced by any mere physical training, notwithstanding that it is capable of doing a good deal under other conditions in improving physical development. We require to enlarge our field for recruiting and to tap other sources of supply.

There will be two vacancies this month in the senior rank of the Army Medical Staff as Surgeon-General W. S. M. Price, Principal Medical Officer, Bombay, reaches the limit of age on August 11th, as does Surgeon-General Sir W. D. Wilson, K.C.M.G., attached to the Home District, on August 27th. The *Army and Navy Gazette* understands that one of these vacancies will be utilised to absorb Surgeon-General W. J. Fawcett, who was recently promoted to act as Principal Medical Officer of the 3rd Army Corps in Ireland.

The number of competitors for 30 commissions in the Royal Army Medical Corps at the examination which commenced on July 29th is 72.

Correspondence.

"Audi alteram partem."

THE CAVENDISH LECTURE ON DISEASES OF THE ASCENDING AORTA.

To the Editors of THE LANCET.

SIRS,—I have read with the pleasure I always experience in perusing his work, Professor T. Clifford Allbutt's lecture on Diseases of the Ascending Aorta, published in THE LANCET of July 18th. I also had the privilege of hearing the Cavendish lecture delivered. We should be grateful to Professor Allbutt, in the midst of his academic activities for having detached himself from these *to lay before us so* much of interest bearing on his theme and in so happy a manner. For, although the kernel is the meat of the nut, there are those—and I confess myself one of them—who prefer to reach the kernel leisurely with the aid of crackers, artistic in shape if possible, to having the naked contents placed before them in balder fashion. With these remarks I perceive you, Sirs, sympathise in your leading article on the lecture in THE LANCET of July 25th. There are many sound and nutritious nuts in the graceful dish which Professor Allbutt has placed before us, but I have picked up one specially recommended by the lecturer, cracked it leisurely, and laid it aside as not suiting my palate, very possibly owing to some defect in my own taste which I cannot help and can only acknowledge. Perhaps I may in time become less fastidious on this point or even, as is the case with some viands, develop an acquired liking for it. The nut in question has been a very hard one to crack for many a day. There are those, indeed, who affirm with some show of reason that this particular kind of nut has never yet been cracked, often as it has been served up at medical banquets and sometimes with the recommendation that it had been cracked and enjoyed by many notable physiological and medical gourmets. Need I add that the nut in question is that always interesting and still obscure problem concerning the nature and site of angina pectoris. The subject occupies a considerable portion *of Professor Allbutt's remarks on the symptomatology* of the condition of which he treats. It is with him synonymous with aortic pain, arises in some portion of the aorta more or less near its origin, and causes its fatal results when these ensue by overthrowing the heart secondarily. That such is the case at times I should be the last to dispute, but Professor Allbutt so states his position as to leave the impression that the agony which distresses or kills a patient in these circumstances does *not* frequently arise elsewhere. He even utilises Pawinski's work in support of his "long-published opinions on the nature of angina," and these, as I have said, associate the pain chiefly with the aorta. The condition which Pawinski describes might, of course, be argued to be as closely related to the coronary circle as to the aorta, but it has probably little to do with either and must affect mainly the nervous mechanism common in some measure to both these structures and to the parts immediately inflamed. Pain of sufficient severity in or near the heart, or, indeed, remote from it, will, we know, at times inhibit a heart into syncope, especially if, as Professor Allbutt points out, the organ be degenerate in fibre. When, however, he states that the "glamour of great names," the "tenacity of a habit of thought," and the "sapping effect of fixed doctrine upon simplicity of thought," have had such an effect as too exclusively to fix our regard upon the coronary arteries as the site of angina pectoris, I can only agree with him with some reservation. The coronary arteries may indeed have been too frequently regarded as the place of origin of this important syndrome, but they can scarcely be said to have been too minutely examined. Beyond having been split up, or dissected, or casually inspected at their orifices, so far as my acquaintance with the literature of the subject is concerned, they have rarely been examined by microscopic section sufficiently carefully to declare their true condition and we are even now largely ignorant of their nervous anatomy. But, this aside, my object in addressing you, Sirs, on this point has been to express my conviction that the time is past for too exclusively situating the causes of angina pectoris in this or that tissue of the heart or its neighbourhood, whether it be the aorta, the coronary arteries, the cardiac muscle, or the extra-cardiac nervous system. It may arise in any of these situations or in one or more of them, and to determine where and how in any particular case we require much more minute examination to be made in fatal cases of the textures of and around the heart than has hitherto been the case in reports of the condition, and more especially with reference to that most neglected field in cardiac pathology, the investigation of the cardiac nervous system after death. I trust that the remarks I have ventured to make may not be regarded as presumptuous when offered in criticism of the views of one who has done so much to enlist our interest in this important question, but I feel convinced that until we break loose from the warp of single localisation in theories of angina—a mood observed in so pronounced and dogmatic a manner in the published conclusions of, for example, M. Huchard—we shall *long find* this subject a very hard nut to crack and not very digestible even when we flatter ourselves that we have succeeded in reaching the kernel of the matter. But I would fain see in Professor Allbutt's references to Pawinski's work the loosening of a too exclusive attachment to the aortic theory of angina pectoris as published, for example, in his Lane lectures, although some of Pawinski's cases do not present a very striking likeness to the classical features of Heberden's disease.

I am, Sirs, yours faithfully,
ALEXANDER MORISON.
Upper Berkeley-street, W., July 25th, 1893.

THE SOCIETY OF APOTHECARIES OF LONDON AND THE GENERAL MEDICAL COUNCIL.

To the Editors of THE LANCET.

SIRS,—I must, on behalf of the Society of Apothecaries of London, take exception to the leading article in THE LANCET of July 25th, p. 242, commenting upon the recent meeting of the General Medical Council and the consideration which then took place of the reports upon the primary examinations of the Conjoint Board and of the Society of Apothecaries. In dealing with the question of the first year's study the statement is made that the Society, following in the wake of the Conjoint Board, has so far failed to carry out the spirit of the recommendation of the Council that it has accepted the last year of study of any boys' school, in which there might be a pretence of playing at science teaching, as the first year of the medical curriculum. I am not concerned to inquire whether this is or is not a correct description of the teaching institutions recognised by the Conjoint Board but not approved by the General Medical Council, to which institutions I assume the statement alludes, but in justice to the Society of Apothecaries I must point out that only candidates who have studied either at medical schools or at institutions recognised by the Council are admitted to the Society's primary examination.

I also regret to notice in the article statements which appear to link the Society with the Royal Colleges in what is termed an "opposition" to the General Medical Council, an "opposition" which, in the case of the Society, I have no hesitation in saying, is entirely non-existent. The Society of Apothecaries is now, and always has been, most anxious to work loyally and to the best of its ability with the Council and has, in fact, consistently done so, recognising fully that the strength and usefulness of the Council can best be maintained by generous coöperation on the part of the licensing corporations; and it has certainly at no time in the past taken up the position, in the words of your article, of "defending its rights and privileges" against "aggression" on the part of the Council, nor does it intend to do so now. I think it is only necessary to refer to the conciliatory terms of the Society's reply to the recent visitors' report on the primary examination to recognise that it is entirely beside the mark to ascribe any intention of hostility or opposition on the part of the Society to the General Medical Council.

I am, Sirs, yours faithfully,
A. MOWBRAY UPTON,
Clerk to the Society.
July 28th, 1903.

THE OVERTRAINING OF MIDWIVES.

To the Editors of THE LANCET.

SIRS,—It is understood that the Midwives Board is formulating the rules for the training of midwives under the Midwives Act. May I, as one who has in a humble way supported legislation in the interest of the poorer classes of women who have to rely in the hour of their need on midwives, claim to say a word at this juncture? There is a tendency, perhaps a natural tendency, now that the Act has been gained to overdo what was meant to be done by it—in other words, to overtrain instead of training the midwife and to make her superior to the work required of her—viz., to attend poor women in ordinary confinements, to nurse them for a week or ten days afterwards, and on the occurrence of any irregularity or abnormality in mother or child to apply for medical advice and assistance. If this tendency to overtrain is not checked the full blessings of the Act will not be realised. If the midwife is to be trained for two years as a nurse, as suggested at a recent drawing-room meeting, she will be trained beyond the nature and scope of her duties, her price will become prohibitive, and the poor will be driven to resort to all sorts of makeshifts to dispense with her services and will encounter the same risks as at present. I am told by one who ought to know that the extension of the midwives' training even to six months will seriously reduce the number of pupil midwives. To understand the tendency to overtraining and its disadvantages we have only to look at what has happened in the nursing calling. A trained nurse now costs at the rate of from 100 to 150 guineas a year. She (or he) has become a luxury beyond the reach of large sections of the community where there are many cases in which a nurse is more or less needed, though the services required are simple and do not call for the amount of training which is now given. Speaking as a general practitioner this seems to me a serious question. But I am concerned for the moment at the tendency of some of those who have most humanely fought for the training of midwives to carry it to excess. I am sure the friends of poor lying-in women will not misunderstand me when I suggest that they will do well to proceed tentatively and slowly. Two points ought to be remembered. Firstly, that the law contemplates that midwifery is still to be under the care of the medical profession and that in all its unusual forms the midwife is to seek medical assistance. Secondly, our maternity charities show well that with the present training of three months, even in very humble homes, the lying-in mortality is reduced to very small proportions.

I have before me the report of the City of London Lying-in Hospital for the year ending 1902. Of 2242 women delivered by the midwives at their own homes (subject, of course, to the supervision of the medical staff) only two women and 31 children died. It seems reasonable to think that the Midwives Board will do well in the first instance to require but little extension of the same training that has been hitherto found to be sufficient and not to endanger the success of the new Act by pitching too high the standard of education.

I am, Sirs, yours faithfully,
J. G. GLOVER.
Highbury-place, N., July 27th, 1903.

LONDON RECEIVING HOUSES FOR THE UNSOUND IN MIND.

To the Editors of THE LANCET.

SIRS,—I have just had an opportunity of reading the Bill for the establishment of these houses in the metropolis which has been sent down by the House of Lords to the House of Commons and which will shortly be discussed there. It bears the stamp of careful consideration of all matters vital to the carrying out of the scheme successfully and it is calculated to meet a pressing need, always recognised by those who, like myself, have long been engaged in caring for the unsound in mind in the great institutions of the metropolitan counties and district. But there is one point in the Bill to which I should like to call very especial attention, and that is its phraseology [illegible] measure in most respects, it [illegible] a misnomer, and that of a [illegible] kind. I refer to the word "lunatic."

What, I ask, is the real necessity for continuing the use of what is now considered an inaccurate and opprobrious epithet? What have mental disorders to do with the moon? No doubt such disorders do sometimes recur and pass through their phases, but can it be shown or proved that those phases are always coincident with phases of the moon or has it ever been proved that the moon produces or even influences mental disorders? Turning to Dr. D. Hack Tuke's "Dictionary of Psychological Medicine" we find the word "lunatic" defined thus: "(Luna, the moon, from its *supposed influence* in *causing* mental disease) A term applied to those diseases considered to be *under the influence* of the moon's phases, &c." The Act 16 & 17 Vict. Cap. 97, declares that the term "lunatic" shall mean and "include *every person* of unsound mind and every person being an idiot," thus including the mildest as well as the most serious disorders of the mind. It is, doubtless, the established and probably convenient legal term, but possibly we of the long-suffering medical profession have been dominated by so-called legal necessities and technicalities too long for the advantage of progressive medicine in that department, especially wherein it deals with diseases and disorders of the great nerve centres. Surely, if there still exist the skill and erudition of some person, be he legal or be he medical, will devise some words better indicating fact and more appropriate generally than the words "lunatic" and "lunacy."

Before closing this letter I would remark that the Bill in question invites the application of out-patients for relief to those receiving houses. I can imagine some such would-be out-patient debating in his own mind before making such an application the questions, "Am I or am I not a 'lunatic'?" "Am I or am I not entitled to the relief offered here?" and turning sorrowfully away, unable or unwilling to admit the soft impeachment and being thereupon for ever afterwards a chronicled "lunatic."—I am, Sirs, yours faithfully,

West Malling, Kent, July 25th, 1903. JAMES ADAM.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—With regard to the letters of Dr. C. A. Rayne and Dr. W. H. B. Brook in THE LANCET of July 18th (p. 185) and 25th (p. 265), I may say that the use of rain and distilled waters is no new thing in the treatment of goitre. It has been familiar to physicians in diverse parts of the world for a long time. Several cases of cure by this means have occurred in my own practice, as I pointed out in a paper read some years ago at Carlisle at a meeting of the Border Branch of the British Medical Association. I do not think that the cure depends on either rain or distilled water as a matter of fact, but on the fact that the patient is drinking a fluid free from the goitrous poison and in proof of this I may quote the following instance from the writings of St. Lager. "Keyssler says that round Schemnitz in Hungary the goitrigenous action of the waters is so evident that those who go to drink the water of a neighbouring valley have the satisfaction of seeing their tumours disappear." Many similar instances could be quoted. Here is an interesting one, also from St. Lager. "Military surgeons who have observed epidemics of goitre at Clermont and several other towns noticed that the officers and non-commissioned officers who only drank wine escaped the disease." It is a remarkable fact that goitre is unknown in places where rain water only is used—e.g., Constantinople, Venice, parts of Holland and Belgium, &c. Cardinal Billiet has put on record a remarkable case of goitre incidence occurring in the village of Puiset in Planaise. Here he found 17 families more or less afflicted with goitre and cretinism from using the spring water of the country. One family was absolutely healthy and used rain-water only. The best results are obtained, of course, in cases of recently formed goitres as when a considerable amount of fibrous tissue is formed the results are not so good although frequently remarkable.

I am, Sirs, yours faithfully,
LOUIS E. STEVENSON, M.B., &c., F.G.S.
Temple Sowerby, Penrith, July 25th, 1903.

To the Editors of THE LANCET.

SIRS,—The letters in the two last issues of THE LANCET on the use of distilled or rain water in goitre induce me to give briefly my own experience. For the last seven years I have directed patients with goitre to drink distilled water or boiled rain water. During this period I have treated about a dozen cases, some of them from other districts. I cannot say that all have been successful; one patient, a woman with a large goitre of many years standing, died; another took distilled water in considerable quantities for six months, but there was no improvement and she was finally cured by hydrofluoric acid. In this case I am confident that the patient always took the distilled water and continued to do so for 18 months after her cure. Of the other cases all were wholly or partially cured, but I cannot be certain that they always carried out the treatment. The conclusion I have come to is that distilled water is a valuable adjunct in the treatment of goitre, but not of itself a specific. It would be interesting to hear the experience of others on this point.

I am, Sirs, yours faithfully,
ARTHUR C. WILSON, M.B., Ch.B. Vict.
Formby, July 26th, 1903.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 25th, p. 264, Dr. C. R. Niven takes me to task for having, as he conceives, misrepresented Dr. G. Archdall Reid's position as set forth in that gentleman's letter to you of July 4th, p. 56. Dr. Reid is, I am sure, well able to take care of himself and will be able to judge whether I have misconstrued his position, but I contend that the very passage which Dr. Niven quotes from Dr. Reid's letter fully bears out the construction put on it. Dr. Reid says: "Even if the germ cells are injured, it does not follow that this injury will be perpetuated in their very remote descendants—i.e., in the body cells of the child—at a time long after the injurious agency has ceased to act" and he implies his disbelief in the possibility of such injury being so perpetuated, his whole argument, indeed, being devoted to substantiating that position, which position, if correct, certainly implies that the germ plasm is incapable of receiving permanent injury by the agency of poisons circulating in the blood—that is, of course, that the damage to individual germ cells is never of such a nature as to lead to permanent alteration in the organism which results therefrom. If any injury has been inflicted on the germ cells of a parent by the action of a poison circulating in the blood this can only be judged of by its effects on the offspring. Either a modification can be produced in the somatic cells of a child as a result of such influence or it cannot. If as a result of the development of germ cells in a vitiated nutrient medium the child resulting therefrom is modified in any direction, however slight, then a definite germinal variation has been produced through the agency of the poison in question. If, however, the effect, if any, produced on the germ cells is always more or less evanescent, and if no permanent alteration can be produced in the somatic cells of the child thereby, then it necessarily follows that the child has not been modified in any way and that no harm of any kind has been produced. As the well-being of the offspring is the only thing with which we are here concerned it is a necessary conclusion that if this cannot be permanently injured by the action of poisons on the germ cells of the parent, then it is a matter of indifference as regards the welfare of such offspring whether the germ cells from which it arises are developed in a vitiated nutrient medium or the reverse.

Dr. Niven devotes a portion of his letter to creating for me an imaginary position and then proceeding to criticise it. I suggested that there might be causes of variation other than those comprised in the union of two dissimilar germ plasms, the context clearly showing that I was referring to the possibility of such variation occurring by the direct action of poisons on the germ plasm; but Dr. Niven chooses to assume that I was arguing in favour of the transmission of acquired characters. I argued nothing of the sort and there is not a line in my letter suggesting any opinion of the kind. As a matter of fact, I am entirely in harmony with Dr. Reid as to the non-transmission of acquired characters and have elsewhere[1] expressed myself in favour of the view that on this question "the Weismannian position at present holds the field." It is therefore somewhat superfluous for Dr. Niven to ask me for proof of doctrine which I do not hold and which was in no way raised in my letter. Dr. Niven goes on to say that if injury is done to the growth of the embryo during the pregnancy of a drunken mother that is not a problem in heredity. I never suggested that it was. I have indeed elsewhere[2] drawn attention to the fact that in these cases any injury done to the germ plasm "will be added to, and reinforced by, chronic alcoholic poisoning of the nervous centres of the embryo during the whole period of intra-uterine life." The condition of the mother during the intra-uterine life of the child is one of the disturbing factors which have to be taken into account in endeavouring to form an estimate as to the effect of poisons upon the germ plasm itself, but in the case of alcohol this disturbing factor can often be entirely eliminated as innumerable cases exist of the union of drunken fathers with sober mothers. I am not disputing the general position which Dr. Reid has so frequently insisted on and which Dr. Niven adopts—viz., that nations are sober in proportion to their past experience of alcohol. I think it probable that such an evolution of alcohol-resistant communities has been and is going on, though I would remind Dr. Niven of the striking example afforded by the Mohammedan races which show us millions of human beings who are perfectly sober not by virtue of such an evolution, but in consequence of the operation of religious sanctions. Where I differ from Dr. Reid and Dr. Niven is in the position they take up that an unfavourable variation such as would presumably be produced by the action of alcohol on the germ plasm of the parents would necessarily go on accumulating from generation to generation until the whole race became extinct Whether it did go on so accumulating or not would depend largely upon the nature of the germ plasm with which it united in the act of fertilisation. Even when many molecules of one germ cell are modified in the direction of instability these may be counteracted and controlled by more stable molecules belonging to the other germ cell and the offspring thus conditioned may be free from taint, a degeneracy which has been begun may therefore be eliminated altogether in future generations As a matter of fact, such a process of elimination of parental taint by reversion to a more stable ancestry is continually going on side by side with one which reinforces and adds to the degeneracy There is a great tendency to regression towards the mean standard of the race, as Galton has shown us, and the more persistent nature of racial characters as compared with individual ones, whilst it renders progress of a healthy kind less rapid than it would otherwise be, has also a preservative influence in the opposite direction I think that the inhabitants of the British Islands may fairly be described as "very drunken", nevertheless, it cannot, I think, be denied that we have abundance of stable germ plasms in our midst ready, it may be, to neutralise the unstable elements of other germ plasms, rendered such by the action of alcohol, or to supplant these latter altogether

---

[1] Journal of Mental Science, October, 1902.
[2] Ibid.

But, in truth, the laws of heredity are so intricate and we are still so ignorant of their mode of operation that dogmatism in either direction is out of place The exact experiments which might settle the question cannot, of course, be conducted on the human subject, but it might be possible to obtain results of value by administering alcohol to some of the lower animals such as anthropoid apes or dogs and noting the effect on the progeny It would, of course, be necessary to give the alcohol in sufficient quantity and for a long enough period of time to get the tissues thoroughly saturated with the poison—to simulate, in fact, the sodden tissues of the chronic alcoholic—and it should be stopped directly conception had been permitted to take place The relatively undeveloped brains of these animals would render impossible an exact comparison with the human subject, but the experiment would be worth a trial

In the meantime, I contend that the remarkable frequency with which alcoholism is found in the family antecedents of those who suffer from insanity or the milder forms of mental instability furnishes a *primâ facie* case against alcohol—that is, in favour of the view that the molecules of the germ cells of the parent are capable of having their development modified by the circulation of alcohol in the blood in such a [illegible] parentage are as stable and healthy as those of parents not so circumstanced?—I am, Sirs, yours faithfully,

Rainhill, July 26th, 1903 J WIGLESWORTH

THE ROENTGEN RAYS IN THE DIAGNOSIS OF PULMONARY DISEASE

To the Editors of THE LANCET

SIRS,—It is becoming customary on the part of those who are more or less enthusiastic over the x rays to assert that cases of pulmonary tuberculosis can be detected by these means at an earlier stage and with greater certainty than is possible by the time honoured method of inspection, percussion, and auscultation in its various applications and refinements. In certain recent communications to THE LANCET[1] this view is upheld and it is therefore with pleasure that one turns to the article of Dr David Lawson and Mr Hill Crombie[2] in which a temperate and carefully expressed opinion is pronounced as to certain facts elicited by radioscopy As, however, the claims put forward by some on behalf of the x rays are such as might lead the unwary to imagine that it is absolutely necessary for them to procure an x ray apparatus in order to do justice to their patients and themselves, I venture to express the opinion that not only are the x rays as a means of diagnosis in early phthisis less valuable and less exact than the ordinary methods, but that in addition, what results they do yield are very frequently unreliable and at the best are difficult of interpretation

Now, this statement is not made in any spirit of prejudice against the recent science of radioscopy. In the hands of those who have had long practice in its use it is frequently of excellent service in many intrathoracic conditions, more especially in the case of deep seated tumours, and also, it may be added, as an aid in the diagnosis of pulmonary tuberculosis, but as regards its superiority in the detection of the earliest stage of phthisis statements of a delusive character are being made

I may preface the brief observations which follow by observing that x ray workers do not, as a rule, detail the examination by percussion, auscultation, &c., which they have conducted in order to check the results of radioscopy in the diagnosis of early tuberculosis. It may be stated that over a certain area, such and such a note was all that could be elicited, or that the breath sounds were doubtfully so and so, but for anything like a minute, systematic, and exhaustive examination one usually searches their records in vain But if such a careful detailed examination be not recorded alongside the results of radioscopy, then these results are valueless as comparative data, however confident the assertions based on them

It is admitted by all radioscopists that it is only in the stage of consolidation, or in other words, after a number of tubercles have fused together so as to form a caseous mass in the lung, that the rays are of any service Dr Lawson remarks that the earliest reliable indication of disease affecting an apex is its "failure to light up on the screen at full inspiration to the same extent as the non affected apex does This negative quality," he says, "is absolutely diagnostic, either of an active or an arrested lesion This property also enables one to define the level of the apex of the lungs on each side respectively—a point in diagnosis to which many attach much importance" Now it can scarcely be supposed that the most devoted adherent of x rayism would allege that such an apex was insusceptible of ordinary diagnosis On the other hand, I should say that refined tests would indicate commencing involvement of an apex at a considerably earlier stage than that above described, and indeed at a time which may be called pre tuberculous—i e, when there is merely comparative impairment of the elasticity of one lung Such diagnostic tests include the various methods of estimating and comparing the apical excursion on both sides and the "segmental" method as described by the writer[3] Such tests, also, can differentiate with certainty between an active and an arrested lesion, which, as Dr Lawson observes, cannot be effected by the x rays

A sign which has been made much of by radioscopists as denoting either the pre tuberculous stage or else the deposition of isolated tubercles is a restriction in the excursion of the diaphragm on one side during deep inspirations It may be true that this phenomenon has obtained prominence since the introduction of radioscopy, but whatever value is to be attached to it, it can be determined with perfect accuracy by the following means (1) by inspection—Litten's sign—when, with the patient lying in the correct position against the light, the diaphragm shadow can be seen as a thin dark line moving up and down the side of the chest, (2) by percussion, in the form of "limitary percussion"[4], (3) by auscultation, especially the vocal resonance, the patient having first drawn a deep breath and the stethoscope moved upwards as he expires and counts audibly, and (4) by auscultatory resonance, by means of a tuning fork, a delicate test by which, with the stethoscope placed over the organ and the tuning fork brought towards it, the edge of the lung can be sharply demarcated during inspiration and expiration These manœuvres, in the hands of those who have practised them, will define the diaphragm excursion as accurately as the x rays. It is, however, to be noted that this "diaphragm sign" is variable, not always trustworthy, and certainly not applicable to all cases It is easy to see that basal conditions affect it greatly and the same, though to a much less extent, may be said of certain abdominal conditions. First described by F H Williams of Boston several years ago and largely quoted since, that acute observer pointed out two facts worth remembering one that in the healthy chest the excursion on the right side is normally greater in forced inspiration than that on the left side, and the other, that in certain early cases of tuberculosis although the inspiratory excursion was shortened on the affected side, yet in forced expiration the diaphragm rose higher on the diseased side, in this way the range being about equal on the two sides of the sick from the bites of mosquitoes. He says: "In the city of Havana alone mosquitoes have been killed to extirpate yellow fever. In no other city or town in Cuba has this measure been put into practice and yet yellow fever has disappeared, not only from Havana, but equally as well from all the other cities and towns." The argument of Dr. Ybarra, as of many Southern physicians, is that improved sanitary and hygienic measures are the true cause of the apparent extirpation of yellow fever in Cuba. Nevertheless, the fact cannot be evaded that the late Dr. Reed and his colleagues conclusively proved that yellow fever is spread by mosquitoes. Accordingly the extirpation of mosquitoes in Cuba should be carried on with undiminished zeal.

---

[1] THE LANCET, June 27th (p 1800) and July 4th (p 55), 1903.

[2] THE LANCET, July 25th, 1903, p 212

[3] THE LANCET, Feb 14th 1903, p. 431

[4] Vide THE LANCET, May 31st, 1902, p 1528, described by the writer.

A Parasite Fatal to the Mosquito.

Dr. Charles Wardell Stiles, of the United States Public Health and Marine Hospital Service, claims to have discovered and isolated a parasite which kills those mosquitoes which it infests. Professor John B. Smith, of Rutgers College, forwarded to Dr. Stiles for examination two worms which had been taken from the abdominal cavity of New Jersey mosquitoes. Dr. Stiles decided that these specimens were larval round-worms belonging to the family mermithidæ and named the parasite "agamomermis culicis." The New York *Sun* referring to the matter states that the mosquitoes infested with the parasite are sluggish in their movements and do not live long and that the females infected do not breed. It is further announced that the Public Health and Marine Hospital Service intends to undertake experiments on a large scale with a view to propagate the "mosquito destroyer," thereby attempting to exterminate mosquitoes in the United States.

Statistics of Suicide in the United States.

Professor Bailey, of Yale University, has for several years interested himself in the question of suicide and has published statistics of suicide in the United States from 1897 to 1901. The Chicago *Tribune* has also kept a similar record, but whereas Professor Bailey has collected his statistics for a period of four years only the *Tribune* has done so for 18 years. Professor Bailey publishes a total of 29,344 cases of suicide during the four years, while for the same period the *Tribune* recorded 30,462. Professor Bailey finds that "shooting is the favourite method of suicide, followed closely by poison. Almost 60 per cent. of the cases of suicide are included under these two heads." The *Tribune* remarks that this may have been true at the time of writing but is so no longer. Since the end of the year 1900 up to the present time the number of self-inflicted deaths by poison has considerably exceeded the number by shooting. The increase in poisoning is attributed to the ease with which certain poisons, and notably carbolic acid, can be procured. Professor Bailey states, reasoning from his figures, that in general the proportion of suicides of males to that of females is about three and a half to one. The *Tribune*, however, judging from later statistics asserts that such is not now the case. At the present time the ratio is less than three to one, and the number of women committing suicide is increasing faster proportionally than the number of male suicides.

General Army Hospital in Washington.

Under an Act passed during the last session of Congress the Surgeon-General of the United States Army is having a sketch made of the arrangement of a group of buildings to serve as a general army hospital in Washington. There has, however, as yet been no appropriation made either for the purchase of the site or for the erection of the buildings.

July 17th.

Obituary.

SAMUEL FARRANT, M.R.C.S. ENG., L.S.A.,

HONORARY CONSULTING SURGEON TO THE TAUNTON AND SOMERSET HOSPITAL.

MR. SAMUEL FARRANT died at his country residence, Amherd, Pitminster, on July 18th, in his sixty-sixth year, from heart failure. Mr. Farrant went to Taunton in early life as pupil to the late Mr. C. H. Cornish and on becoming qualified he commenced practice in the town and continued it up to his death. He was for a long period honorary surgeon to the Taunton and Somerset Hospital and upon his retirement a short time ago he was elected honorary consulting surgeon. Mr. Farrant had an extensive practice and a considerable reputation as an ophthalmic surgeon. He took a great interest in municipal matters and was at one time mayor of Taunton. He was also a surgeon-lieutenant-colonel of the West Somerset Imperial Yeomanry. Mr. Farrant was a strong Churchman and had filled the office of churchwarden at both St. Mary's and St. James's churches. He initiated and carried out a restoration of the latter church a few years ago.

Mr. Farrant was for 40 years one of the district medical officers of the Taunton board of guardians. The deceased was one of the representatives of Taunton on the Somerset county council at the time of his death. He enjoyed great popularity in Taunton and much sympathy is felt there for his widow and children. At the funeral, which took place at St. Mary's cemetery, Taunton, on July 22nd, the mayor and corporation attended in state and representatives of the various public bodies with which the deceased was connected were also present, including a considerable number of members of the West Somerset Imperial Yeomanry, headed by the commandant (Colonel Barratt, J.P.).

JOHN ALEXANDER COOKSEY, M.R.C.P. EDIN., M.R.C.S. ENG.

MR. J. A. COOKSEY, whose death took place on July 19th, at his residence, The Lynches, Malvern, was the eldest son of John Haynes Cooksey and was born at Worcester on May 15th, 1820. The family have been connected with the county for centuries and were formerly considerable landed proprietors. The deceased was educated at the High School, Edinburgh. He was a favourite pupil of the late Mr. Carden of Worcester, a well-known surgeon, and he completed his medical course at St. George's Hospital, London. In 1845 he became M.R.C.S. Eng., in 1859 L.R.C.P., and in 1878 M.R.C.P. Edin. After working with the late Dr. John Berry for about two years at Coventry he purchased a practice at Chipping Campden, Gloucestershire. There he remained for about 15 years, during which time the practice greatly increased. In his comparatively early Chipping Campden days an action was brought against him, but the charge was so utterly without any foundation that when the day for the trial came counsel withdrew the case. The action aroused widespread sympathy and a testimonial was presented to the defendant consisting of both plate and money. In 1863 he sold his practice at Chipping Campden and settled at Malvern, where he practised for 21 years and took an active part in the erection of the rural hospital and other local improvements. In 1876 he again appeared as defendant in court, but he won an easy victory, the jury not thinking it necessary even to hear all the witnesses for the defence and declaring that he left the court without the slightest stain on either his professional or private character. The action had aroused much interest in Malvern and a second testimonial was presented to Mr. Cooksey. He retired from practice in 1884, chiefly on account of deafness, being succeeded by the late Dr. Prothero, with whom he had been in partnership for two years.

NATIONAL ORTHOPÆDIC AND ROYAL ORTHOPÆDIC HOSPITALS.—At a special meeting of the governors of the National Orthopædic Hospital on July 24th, held at the hospital in Great Portland-street, London, the following motion was duly passed:—

> That the amalgamation of the National Orthopædic Hospital and the Royal Orthopædic Hospital on the arrangements agreed upon at the meeting of the committee of management held on March 20th, 1903, is approved of.

Before this resolution was formally adopted the chairman, Mr. Robert Cooper, read out the following letter signed by Mr. E. Muirhead Little, honorary secretary of the medical board of the hospital:—

July 22nd, 1903

DEAR SIR,—At a meeting of the medical board held at the hospital this afternoon I was desired to ask you to lay before the governors at their special general meeting on the 24th inst. the following resolution which was unanimously passed by the board: "That it having been reported in the press that on amalgamation of the 'Royal' and the 'National' Orthopædic Hospitals the surgical staffs of the two hospitals as at present constituted would be joi[illegible] this [illegible] to [illegible] of [illegible] to [illegible] tion [illegible] opinion that all members of the surgic[illegible] hospitals—without any exception—must [illegible] stipulation they have understood from th[illegible] of management has always been put forward by him in the negotiations with the King's Hospital Fund.'

THE
BRITISH MEDICAL ASSOCIATION.
MEETING AT SWANSEA.

The meeting of the British Medical Association at Swansea marks its seventy-first anniversary, and this is, we believe, the first occasion upon which the association has selected Swansea for its annual congress.

We may repeat with regard to Swansea what we said last year concerning Manchester—it is not a lovely city. The critics who are ready to point out that medical and other scientific congresses have much lost their serious value, having developed, or rather degenerated, into picnics, must acquit the executive of the British Medical Association of choosing in Swansea a place the intrinsic attractions of which will draw members away from the meetings of the sections. But Swansea was not always ugly. It has become so in the course of its commercial development, in passing from what it was in the old days, a much patronised health resort, to a busy industrial centre. The health-giving properties of the environment of both sea and country, however, remain and numerous little health resorts have sprung up to the westward in Swansea Bay extending to the Mumbles and beyond to Langland Bay. Here the scenery is most interesting, the coast being of a wild and rugged type, like that of Cornwall, bounded with steep crags of greystone. This beautiful district is locally known as the Mentone of South Wales, the name being due to the curious mania that we have as a nation of belittling our own natural beauties by nicknaming picturesque localities after foreign places. The title of "Mentone" would seem to be justified from the fact that while in winter the weather is genial and mild, the inland heights serving as a source of protection from the north and east winds, in summer it is bracing. The temperature keeps within the limits of the temperate zone, but a somewhat heavy rainfall is annually recorded. The weather is frequently of the Atlantic type. Towards Langland Bay may be seen groups of plants and trees which are characteristic of southern stations, such as Torquay or the Riviera.

But Swansea proper is now a purely commercial centre and by the Association's decision to hold the annual meeting in Swansea this year medical men have found themselves gathered together in a busy shipping centre with evidences of docks, foundries, collieries, and busy markets on all sides, and through some of the streets are railways for heavy mineral traffic, recalling busy places in the vicinity of the docks of London or Liverpool. The industrial progress of Swansea has been enormous during past years owing to the rapid development of coal-mines and of a big mineral trade directed chiefly to the smelting of copper, iron, and nickel. But the greatest of all industries perhaps is the tinplate trade, this class of goods being exported in enormous quantities to all parts of the world. Within a four-mile area it is stated that there are close upon 200 works in Swansea. Not far from Swansea is Landore which is a huge blot both on the land- and sea-scape. By day it is seen to be smothered in a cloud of black smoke and by night it has the weird, uncanny aspect of a valley full of many-coloured blazing chimneys and furnaces. It is obvious that the chief occupations of the inhabitants of Swansea call frequently for surgical and medical aid and the town has an excellent equipment in this regard, as exemplified by the Swansea Hospital and several dispensaries. There is also an institution for the deaf, dumb, and blind.

The annual museum was held in the public library in the Alexandra-road. The organising committee evidently met with some difficulty in providing a suitable place for the purpose. Otherwise it might be imagined that a drill-hall or some other building of plain description would have been chosen instead of the rooms and corridors of an art gallery. The exhibitors, at any rate, ought to be pleased with the space placed at their disposal and with its attractive surroundings in the shape of pictures, statuary, and other art productions. There was, however, some difficulty experienced in placing the exhibits to the best advantage owing to the very proper restrictions laid down by the authorities as to the use of nails or hoardings on the walls. The pictures were thus left in their position, but some of the statues had of necessity to be removed. The exhibits occupied the ground-floor and the first and second floors of the building. Those exhibitors who occupied the ground-floor were decidedly favoured, for at first sight the visitors concluded that the exhibition was limited to that floor. Owing probably to the rainy weather on Tuesday a very good start was made and the influx of interested persons almost reached crowding point. Several local firms were represented. In another column we commence an article descriptive of the interesting exhibits of foods, drugs, and sanitary and medical appliances.

At the first general meeting H.R.H. the Prince of Wales was elected an honorary member of the British Medical Association. "Not only for the honour his membership will confer on the Association, but for the distinguished services His Royal Highness has rendered to the medical profession," were the words of the motion recommending the election which we need hardly say was unanimous. This was a fitting sequel to the precedent created some few years ago when His Majesty the King, then Prince of Wales, gave one of his numerous proofs of interest in the medical profession by accepting the honorary membership of the Association. So recently as last month the Prince of Wales was showing similar interest in a most useful and practical manner by presiding at the festival dinner of the Royal Medical Benevolent College with most satisfactory results to that excellent institution, and there is no doubt that in the Heir Apparent we have a friend to scientific and medical progress who will be ready to use his exalted position for the general advancement. A telegram was received from His Royal Highness during the meeting thanking the Association for the honour conferred on him. Dr. T. D. Griffiths afterwards delivered the presidential address, which will be found in another column.

The Address in Medicine, which we also publish this week was delivered by Dr. Frederick T. Roberts, senior physician to University College Hospital, London, on Wednesday evening.

The local entertainment sub-committee, under the chairmanship of Mr. Jabez Thomas, has worked hard to provide recreation for the members and to furnish them with opportunities for seeing the sights of the neighbourhood. One of the most popular of the many garden parties held in honour of the visit of the Association was that given on Tuesday, July 28th, by Mr. and Mrs. William Walters at their delightful residence overlooking the Bay of Swansea at Ffynone. Though the weather was somewhat unpropitious the lovely grounds were thronged with visitors who admired the many beautiful views to be seen from the well-kept lawns. On Wednesday and Thursday excursions were arranged to the Towy Valley, Bishopstown Valley, Caswell Bay, Oystermouth Castle, and Clyne Castle, while cricket and golf matches were also arranged, but the weather dislocated nearly all plans.

The want of sufficient accommodation in Swansea, owing partly to the clashing of the assizes with the meeting of the

British Medical Association, has been partly met by the formation of a camp on a beautiful site a little beyond the Mumbles. 13 members of the Association availed themselves of this opportunity of enjoying fresh air and each was provided with a tent to himself. The general arrangements of the encampment were on the lines of an officers' mess. The occupants of the tents were made honorary members of the local yacht club and had a thoroughly enjoyable experience, the splendid view of the surrounding country and the general feeling of independence and freedom compensating them for the inclemency of the elements. The success of this effort to solve the housing question was largely due to the kindness and courtesy of Captain Thomas of the local volunteers, and the example furnished might well be imitated on future occasions when the Association is holding its meeting in a town of limited accommodation.

The usual service took place on Tuesday at the parish church. The church was fairly well filled and the Mayor and corporation attended in state. The sermon was preached by the Lord Bishop of St. David's from the text, "Christ also suffered" (St. Peter ii., 21), and the alms were, as usual, divided between Epsom College and the British Medical Benevolent Fund.

Much praise is due to Mr. Guy Elliston, the general secretary of the Association, for his untiring energy to promote the smooth working of the machinery of this the first annual meeting over which he has had undivided business control. Our thanks are also due to him and to his staff for their kindness to our representatives in many directions.

For the accommodation afforded to our staff at Swansea we tender our thanks to Mr. Ebenezer Davies, the medical officer of health, who very kindly placed his offices at our disposal and rendered us much assistance thereby.

The seventy-second annual meeting of the Association will be held at Oxford in 1904, Dr. William Collier, senior physician of the Radcliffe Infirmary, being nominated as President-elect.

THE GENERAL MEETINGS.

THE FIRST GENERAL MEETING.

The First General Meeting was held in the King's Hall on July 28th at 2 P.M.

The retiring President, Mr. WALTER WHITEHEAD, took the chair and introduced the President-elect, Dr. Thomas Dryslwyn Griffiths, late physician to the Swansea Infirmary and ophthalmic surgeon to the Swansea Hospital.

Dr. GRIFFITHS then took the chair and the official badge was presented to him by Mr. W. F. Brook, one of the local honorary secretaries. After thanking the Association for electing him to his high office, he remarked that his first official duty was a most pleasing one—to announce that His Royal Highness the Prince of Wales had consented to accept the honorary membership of the Association. He had therefore much pleasure in moving:—

> That His Royal Highness the Prince of Wales be and is hereby elected an honorary member of the British Medical Association, not only for the honour his membership will confer on the Association, but for the distinguished services his Royal Highness has rendered to the medical profession.

The President of the Council, Mr. ANDREW CLARK, seconded the motion, which was carried with acclamation, the audience rising and singing "God bless the Prince of Wales," Dr. S. Cromwell Jones singing the solo.

Dr. G. B. FERGUSON, in a well-chosen speech, proposed a vote of thanks to the retiring President, Mr. Whitehead, which was unanimously agreed to, as was also the proposition that he should be elected a vice-president for life.

Mr. WHITEHEAD, in replying, expressed his gratification for the honour conferred on him and as an encouragement to the President for the year he would say that his year of office had been one of the most pleasant of his life.

The PRESIDENT then vacated the chair in favour of the chairman of the Council and the financial statement was submitted to the meeting by the treasurer, Dr. E. M. SKERRITT. A breezy discussion ensued, Dr. ROBERT BELL taking exception to the meagreness of detail offered to the members in the accounts. He wanted to see more profit out of a revenue of £40,000.

The speaker was interrupted repeatedly in the course of his remarks and the meeting clearly did not appreciate his views. Several members defended the Council and the treasurer made an effective reply, after which the financial statement was adopted.

Dr. H. W. LANGLEY BROWNE proposed that a grant of £300 should be added to the nucleus of £500 which already existed to form a superannuation fund for the office staff when overtaken by age or sickness, which, after some discussion *pro* and *con*, was agreed to.

The meeting was then adjourned.

THE (ADJOURNED) FIRST GENERAL MEETING.

The adjourned first general meeting took place in the evening at the Albert Hall, which was well filled by the members, while many guests were present, including a large number of ladies. The platform was tastefully decorated and the Morriston Male Voice Party sang several pieces. The Mayor of Swansea (Mr. Griffith Thomas) welcomed the members of the British Medical Association to the town and introduced the new President.

The PRESIDENT then announced that the Prince of Wales had that afternoon been elected an honorary member of the Association and read a telegram which he had received from His Royal Highness, which was as follows:—

> In thanking you for your kind telegram I beg to convey to the Association my appreciation of the resolution passed to-day. I feel very proud to have been elected an honorary member and I wish the British Medical Association all prosperity.—GEORGE.

The Stewart prize was then presented to Dr. F. W. Mott for his researches into the causes and prevention of dysentery in asylums and the reception of foreign and colonial guests followed.

Dr. GRIFFITHS then delivered his Presidential address which we publish at p. 281. Votes of thanks to the President and to the Mayor of Swansea concluded the proceedings.

THE SECOND GENERAL MEETING.

The second general meeting was held in the King's Hall on July 29th. The proceedings only lasted a few minutes and consisted in the announcement that the meeting of 1904 would be held at Oxford and that Dr. William Collier would be the President.

THE SECTIONS.

MEDICINE.

WEDNESDAY, JULY 29TH.

Medical Treatment of Inflammations in the Cæcal Region.

After a few introductory remarks by Dr. C. T. VACHELL (Cardiff), one of the vice-presidents of the section who occupied the chair, a discussion on the above subject was opened by Dr. P. M. CHAPMAN (Hereford). In cases of appendicitis, he remarked, the question of surgical interference was a very important one, and in Dr. Chapman's view surgical measures were to be avoided if possible. The main responsibility for the treatment of cases of appendicitis rested primarily with the physician and many of these patients recovered by expectant treatment. He had met with several cases in which abdominal explorations had been attended with disastrous results. He tendered an apology for the brevity of his remarks owing to the shortness of the notice which he had received.

Dr. H. W. KING (Chester) wished to confirm the views expressed by Dr. Chapman. Many cases would do much better with hot fomentations, aperients, and small doses of opium. Belladonna and hyoscyamus sometimes promoted the action of the bowels.

Dr. T. D. **SAVILL** (London) thought that a large number of cases of appendicitis and other inflammations in or around the cæcum were preceded by chronic catarrhal colitis, as distinct from membranous or ulcerative colitis, and important preventive measures might be adopted by the recognition and treatment of this form of colitis. The mucus in the stools was apt to be overlooked by the patient and his medical man and these patients sometimes came under notice for neurasthenia, malaise, or malnutrition of indeterminate origin. The treatment consisted mainly of regulated diet, the administration of intestinal antiseptics, and lavage of the large bowel.

Dr. **WILLIAM COLLIER** (Oxford) also remarked that more attention might be devoted to the intestinal conditions which preceded appendicitis. He referred to a case which he had recently seen in which operation was delayed with advantage. He doubted whether surgeons saw the early cases of appendicitis attended with mild symptoms which general practitioners met with so largely. He thought that more lives had been saved by early operation than had formerly been lost by delayed operation, but amongst the disadvantages of operation were secondary herniæ and pain in the region of the cicatrix.

Dr. **MICHAEL GEORGE FOSTER** (San Remo) recalled the contention of M. Dieulafoy that membranous colitis rarely lead to appendicitis, but he (Dr. Foster) had watched about 30 cases of the first-named disease and in four of them appendicitis had subsequently developed. Such a high percentage rather favoured the view that it was not uncommon for the morbid process to extend from the colon to the appendix. With regard to the treatment of membranous colitis, he wished to emphasise the value of a large quantity of solid and simple food. Vegetables should always be given in the form of a *purée*.

Dr. R. **SAUNDBY** (Birmingham) referred to a case under his care some years age of relapsing appendicitis which had been operated on in the third attack, the appendix, however, not being removed. The patient died and for some years he (Dr. Saundby) had hesitated to call in a surgeon, but in later years, as knowledge advanced and surgeons become more accustomed to the operation, he had adopted more enlightened views. A patient should not be allowed to go without operation who presented a chronic inflammatory induration in the right iliac fossa or who had repeated relapses.

Dr. W. J. **TYSON** (Folkestone) thought that the subject of the treatment of appendicitis belonged to both physicians and surgeons, but in the early phases of the disease it was undoubtedly medical.

Dr. A. **MCPHEDRAN** (Toronto), referring to the treatment of appendicitis, thought that the application of leeches was a good procedure. The diagnosis was often very difficult and he referred to the value of leucocytosis as an evidence of suppuration.

Mr. C. R. **STRATON** (Wilton) and Dr. **WILLIAM ODELL** (Torquay) also spoke.

Dr. **CHAPMAN** gave a demonstration of the instrument used by him for obtaining simultaneous heart and pulse (index) tracings.

Dr. **WILFRED J. HARRIS** (London) and Mr. V. W. **LOW** (London) made a communication on

The Treatment by Operation of Erb's Palsy, Traumatic Paralysis of the Upper Extremity, and Infantile Paralysis by Cross-union of the Nerve Trunks.

Since Erb in 1874 described in adults the paralysis of the deltoid, the infraspinatus, the biceps, the brachialis anticus, and the supinators, previously described in newly-born children by Duchenne as "obstetrical paralysis," there had always been some uncertainty as to the exact localisation of the lesion. Erb himself first ascribed the condition to a traumatic lesion of the sixth cervical root, but since the experiments of Ferrier and Yeo on the brachial plexus in the monkey in 1883 this form of paralysis has usually been ascribed to a lesion of the combined fifth and sixth trunks. This the authors believed to be an error resulting from an assumption that the brachial plexus of the monkey is identical with that of man. During the last 12 months Dr. Harris had had under treatment two very complete and remarkable cases of this palsy, one traumatic, the other occurring spontaneously, but resembling each other in almost every detail. In each case the paralysis and wasting had been complete, with no attempt at recovery of the deltoid, spinati, teres minor, biceps, brachialis anticus, coracobrachialis, supinatores longus and brevis, pronator radii teres, and extensores carpi radialis longior and brevior. Feeling convinced by previous clinical experience and by a study of the writings of Thorburn and of Sherrington that the sixth cervical root was not involved in these cases, and that the lesion was probably confined to the fifth root, Dr. Harris undertook some dissections and experimental stimulation of the brachial plexus in monkeys and found that it was possible by carefully splitting the roots and following the fibres to the muscles that the spinati, the deltoid, the biceps, and the brachialis anticus and supinator longus were in large part supplied by the fifth root. Experimental stimulation confirmed this result in *rhesus*, and it therefore seemed feasible that an operation might benefit the two patients spoken of by exposing the fifth, sixth, and seventh roots in the neck, isolating and stimulating each faradically, and thereby determining whether one or both of the fifth and sixth roots were affected and if one only to divide it and to sew the distal end of the root into the seventh root in the hope of a down-growth of motor nerves into the paralysed root, similar in plan to the cross-union of nerves for facial paralysis which had been successfully performed. This had been done in both the patients, in one the distal end of the fifth root being sewn into the seventh root, and in the other, the traumatic case, the distal end of the fifth root was sewn into the sixth root. The conditions found at the operations and the results of faradic stimulation of the roots were carefully noted and fully confirmed the opinion that Erb's palsy was due to a lesion of the fifth root alone. In the traumatic case before the operation there were comparative anæsthesia and subjective numbness over the whole of the thumb and the outer side of the index finger, dating from the time of the fall on to the shoulder. This rapidly improved after the operation, disappearing entirely within a week, the improvement being probably due to the sixth root having been freed and cleaned from the scar tissue. No motor improvement had yet occurred in either case, nor was it to be expected for many weeks, six weeks only having elapsed since the first operation. Applying the same reasoning to infantile paralysis (acute anterior poliomyelitis), since it is fully proved that the cord segments corresponded exactly to their respective motor roots, it had occurred to Dr. Harris that an operation on the fifth root might also be beneficial. This was accordingly done in a case of infantile paralysis of four months standing in a little girl, aged two years, the muscles affected being the deltoid and the supra- and infra-spinatus, while the biceps and all the other muscles were normal. At the operation the fifth root was split longitudinally in halves and it was found by faradic stimulation of the two halves separately that the upper half supplied the deltoid, while the biceps was supplied by the lower half. The upper half of the fifth root was then cut across and its distal end turned over and sutured into the sixth root. Uneventful recovery from the operation followed but it was still too early to expect any motor improvement.

Dr. R. **LORD** (London) read a paper entitled "Personal Reflections on the Treatment of Disease by Antitoxins, Toxins, and Vaccines, together with other uses of Serum-therapy."

SURGERY.

WEDNESDAY, JULY 29TH.

A discussion on

Intra-Abdominal Anastomosis

was opened by Mr. G. H. **MAKINS** (London) who commenced by pointing out that statistics based on the earlier records of intestinal anastomosis were at the present time practically valueless and misleading, for so much advance had recently occurred that the results of a few years ago were not to be compared with those obtained at present. He continued: There are three methods of joining intestine—namely, (1) axial or end-to-end, (2) lateral anastomosis, and (3) lateral implantation. Axial anastomosis should be limited to cases where the bowel is invested with a complete peritoneal covering and provided with a free mesentery, so that the intestine can be moved sufficiently to allow the anastomosis to be carried out, while lateral anastomosis is applicable everywhere except at the junction of the sigmoid flexure and rectum. In favour of the axial method it may be said that when it heals thoroughly the result is very good and only one joint has to be made, but against it it may be said that the nutrition of the junction is not good for the vessels have to be divided where they are large and thus the union may not be so firm and the risk of leakage is greater. It is true that in the vast majority of cases in which leakage occurs it is very slight and only gives rise to a little local inflammatory exudation around the junction, but even this would tend to retard recovery. In favour of lateral anastomosis it might be pointed out that this is the "natural" way in which an anastomosis occurs in disease, as in "vicarious communications" between two portions of bowel. The advantages of lateral anastomosis are: (1) that it approximates two plane surfaces of intestine instead of corrugated surfaces as in end-to-end union; (2) the size of the opening can be made as large as is necessary so that there is no risk of cicatricial contraction; (3) it is possible to avoid completely the mesenteric border and thus the intestinal vessels are only divided where they are small; and (4) it is possible to avoid the field of disease without removing too large a portion of bowel as in necrosis of the bowel after strangulation. Moreover, when leakage does occur after lateral anastomosis it is almost always at the blind end of the bowel. Lateral implantation is chiefly applicable to cases where it is desired to unite a piece of bowel of small lumen to one much larger, as in union of the ileum to the ascending colon. Mr. Makins here quoted statistics bearing on these points. At St. Thomas's Hospital the mortality of all the cases of axial union was 53 per cent., but on the other hand Littlewood had performed 11 enterectomies for carcinoma of the large bowel and the death-rate was under 28 per cent. Von Eiselsberg had 12 cases of resection for intussusception and in these cases union was by axial anastomosis and the mortality was 25 per cent. Mr. Makins proceeded: It must not be forgotten that the mere method of uniting the intestine is not the only thing of the greatest importance to preserve the wound free from contamination. This is accomplished by careful clamping of the intestine on each side of the field of operation. I consider that Doyen's is the best intestinal clamp. It is important to determine the amount of mesentery to be removed; this will depend on the cause of the enterectomy. In cases of gangrene the amount of gangrenous bowel determines the amount of mesentery needing removal, but if a new growth is to be excised the degree to which the mesentery is diseased will determine the extent of bowel to be excised. It is best to remove the mesentery first before the bowel is incised. Folding of the mesentery is done most commonly in strangulated bowel but it is not always safe, as the veins may be the seat of a septic thrombosis. Two tiers of sutures should always be employed, the inner including chiefly the mucous membrane and the outer only the serous layer and a portion of the muscular coat. The simpler the method of suture the better and the simple continuous method is the best. Murphy's button is theoretically very good, but the practical objections are great. Oblique section of the bowel has been tried, but where it is sutured there is apt to be a kink. Should any excessive mucous membrane be present it is better to remove it, as it tends to form a "diaphragm."

Mr. E. **Stanmore Bishop** (Manchester) also contributed a paper to the discussion. He commenced by making the suggestion that the portion of the circumference of bowel most distant from the mesentery should be called the "fundal" point or line, agreeably to the analogous use of the word "fundus" in the description of the uterus and bladder. Mr. Bishop's opinion on intestinal anastomosis was founded mainly on 22 cases, most of which were connected with hernia. In one of these cases a portion of gangrenous bowel was excised and the ends were united by a Czerny-Lembert suture, yet a "diaphragm" formed and this becoming œdematous caused fatal obstruction. In Mr. Bishop's opinion the question of the value of mechanical assistance was closely associated with the question of the portion of bowel to be dealt with. If the anastomosis were in the upper part of the small bowel or the stomach the contents were liquid and could exert a dissolving action on a decalcified bone bobbin, but lower down the intestine the contents were more solid and had less dissolving power; therefore absorbable appliances were more suitable in the upper portion of the bowel. Some dough bobbins were shown and bone "couplers" devised by Frank of Chicago were exhibited. Mr. Bishop proceeded to discuss various other mechanical appliances which had been employed for intestinal anastomosis, such as O'Hare, Vidal, and Doyen forceps, and he described other methods of suture. He thought that there was no reason why the inner suture should not perforate the whole thickness of the bowel wall.

Mr. **Jordan Lloyd** (Birmingham) claimed that in intestinal anastomosis simplicity was the most important point; he himself employed common sewing needles and common silk (of course carefully sterilised). He considered that many mechanical appliances were very dangerous. It was true that simple suture took a little more time than the employment of a mechanical appliance but the difference was only slight. It was important that the abdominal wound should be sufficiently large to permit of easy manipulation. In his opinion the chief danger was hæmorrhage. On the whole, lateral anastomosis should always be done when circumstances permitted.

Mr. E. **Deanesly** (Wolverhampton) maintained that lateral anastomosis was not so natural as the end-to-end form, for in those rare cases of intussusception where recovery followed sloughing of the gut the bowel united by axial anastomosis. He approved of the use of two tiers of sutures, the inner going through all the coats. No mechanical appliance need be employed, needles and silk only being required. In every case a "diaphragm" must form, but it only became excessive when too much oft he bowel was turned in.

Mr. R. C. **Elsworth** (Swansea) mentioned that in his last six cases of intestinal anastomosis he had used Murphy's button and all had recovered. He considered that most of the fatal cases in which the button was used were due to the method employed. The parts of the button should be pressed together as firmly as possible and it was as well to add a few external stitches.

Mr. J. **Basil Hall** (Bradford) formerly employed the bone bobbin, but now he used simple suture, the inner suture of catgut, passing through all the coats, and the outer of silk.

Mr. G. G. **Hamilton** (Liverpool) had tried the Murphy button and, indeed, he employed successfully a one and a half button in two cases of colectomy, but now he used nothing but the simple suture.

Mr. **Sinclair White** (Sheffield) considered that by ligaturing the mesentery first he obviated the risk of hæmorrhage. He had had many successful cases of enterostomy in which he employed Murphy's button, but in five of the cases he never saw the button again. He favoured simple continuous suture.

Mr. A. B. **Mitchell** (Belfast) spoke strongly in favour of two tiers of simple continuous suture, the inner one passing through all the coats and the outer through the serous, the muscular, and the submucous coats. In lateral implantation the incision into the bowel should be transverse.

Mr. A. W. **Mayo Robson** (London) declared that he was in favour of union by suture but that he had found much assistance from the support of the bobbins which he had devised. He considered Murphy's button to be distinctly harmful, for the surgeon could never be certain what would happen.

Mr. W. H. **Horrocks** (Bradford) related a case of malignant disease of the bowel in which he removed 36 inches of gut and then invaginated the lower portion of the bowel into the upper and fixed it there with sutures. The case did very well.

Mr. F. F. **Burghard** (London) considered that the "diaphragm" which sometimes appeared after end-to end anastomosis was due to turning in too much of the bowel by means of the external sutures. He thought the material of which the suture was composed to be a matter of very slight importance.

Mr. **Edmund Owen** (the President of the section) expressed the pleasure which he had derived from the discussion. He noticed that no one had spoken of the need of sewing up the triangular interval in the mesentery; he thought that attention to this point was of great importance.

Mr. **Makins** and Mr. **Bishop** replied.

OBSTETRICS AND GYNÆCOLOGY.

Wednesday, July 29th.

Professor W. **Stephenson** (Aberdeen), the President, gave a short introductory address on

The Trend of Opinion in Obstetrics.

He remarked that those whose student days, like his own, dated back 40 years or more, were conscious of great advance in the science, and many changes in the practice, of obstetrics. Gynæcology as a special branch was unknown then. The younger generation of to-day could not realise the wonder which a successful case of ovariotomy then excited or the dread of opening the peritoneal sac. Similarly the use of the forceps was at first contemplated with something like alarm by the generality of the profession. A change of wide influence in the sphere of obstetrics in the present day was the freer acceptance of the principle of interference as contrasted with the opposite principle so strongly inculcated in former days. Such interference was not a question for experts alone; it lay largely within the sphere of the general practitioner. In gynæcology, too, it was essential that the practitioner should have the necessary amount of knowledge which would enable him to recognise the gravity of a given condition and when the services of the specialist should be enlisted. In midwifery in the majority of cases he (the practitioner) himself must also be the operator, for the danger often arose so suddenly and with so little warning that there was no time to summon assistance. This had a decided bearing on the length of time which in the medical curriculum was devoted to the acquisition of such requisite knowledge and also on the methods by which it was sought to impart that knowledge. A deficiency in our text-books was the discussion as to how and when aid should be extended. The mere number of cases attended before presenting himself for examination was no estimate of a man's knowledge of midwifery. Nor yet, on the other hand, should too much reliance be placed on the mere acquaintance with text-books. There was much to be said for the good effect of lectures, systematic and clinical, quickened as they were by the living voice and illumined by the personality and experience of the teacher. His (the speaker's) experience was that the 100 lectures customary in the Scottish Universities were inadequate to overtake the subject, and now in Aberdeen the number of hours was increased by a half more and the time over which the study of the subject extended had been doubled. By means of the cadaver and models the practical study of the anatomy of the pelvic organs, the methods of examination, the mechanism of labour, and the diagnosis of the lie of the fœtal head, as well as the delivery of breech cases and the application of forceps, were all usefully and helpfully studied. Such a class should be made compulsory in all the schools, without of course superseding the attendance on midwifery cases. Whilst in a sense gynæcology and obstetrics were distinct, they had, nevertheless, so much in common and were so wedded together in actual practice that it was not good they should be put asunder. Strictly speaking, in its etymology the term "gynæcology" would include pregnancy and labour. The subjects which would presently be discussed in this section would illustrate the fact that medicine, surgery, and midwifery must all be brought into action in the solution of many of the difficult problems of gynæcology and obstetrics.

Dr. AMAND ROUTH (London) opened a discussion on

The Management of Pregnancy Complicated with Uterine Fibroids.

The object of this discussion was to eliminate methods of treatment which could now safely be abandoned and to indicate the best modern methods. 1. With regard to the effect of pregnancy upon the fibroids, he was of opinion that in those cases where rapid increase of size had been recorded there was nothing to show that it was the fibroid itself which had undergone such increase. Whitridge Williams thought the increase of size was due more to œdema than to actual hypertrophy. Fibroids might diminish in size or even disappear during involution. It was probable that softening during pregnancy must precede absorption afterwards. Playfair in 1877 had recorded a case of almost complete disappearance of a large fibroid which increased again rapidly at the next pregnancy. Intra mural fibroids tended to become driven outwards during involution and become more definitely subserous. Degeneration and extrusion of submucous fibroids might occur after labour, especially if the labour had been prolonged. Such a fibroid might be expelled from the uterus without serious consequences, but usually in process of extrusion the circulation of the fibroid became arrested and sloughing ensued with sapræmia or septicæmia and death if the expulsion of the polyp did not occur. A case illustrating this was quoted in which life might have been saved had hysterectomy been performed when sepsis had declared itself. Fibroids might become infected during the puerperium and the softening effect of pregnancy rendered them most liable to infection. Such an infection at term, though rarer, was more serious than that following abortion. 2. With respect to the effect of fibroids upon a co-existing pregnancy, the question arose as to whether fibroids caused sterility, and in estimating this point it must be remembered that these tumours were most common at an age when pregnancy was naturally less frequent. In reviewing the facts it seemed to him (the speaker) to be probable that fibroids are by no means a frequent cause of sterility and it was possible that Mann's view, that sterility was a cause of fibroid, was truer. Whitridge Williams showed that the sterility is due mainly to endometric changes, to fibroid, or to altered relations of ovaries and Fallopian tubes. Fibroids probably did not predispose to abortion or premature labour, although labour may come on a week or two before full term. A table was shown illustrating this point. Fibromyomata certainly did cause fœtal mal presentation and whilst delay in labour with fibroids was the rule there was no marked tendency to inertia. On the other hand, there was a decided predisposition to post-partum hæmorrhage in these cases and in not a few instances this was due to the association of adherent placenta, which, though sometimes pathological, was most often physiological, and the manual removal necessitated by that condition. A very serious question arose when the physician was consulted at the fourth or fifth month or later as to whether a complicating fibroid would interfere with labour. The fibroid might appear to render the passage of a child at or near term impossible and yet a definite opinion might be formed that the tumour would be lifted up out of the pelvis by the steady growth of the uterus. Mann had recorded a case where such an elevation of the tumour had occurred in the second stage. When this occurred the cervix resumed more or less its normal position. Nature has often succeeded in the removal of an obstruction which repeated attempts by the accoucheur had failed to encompass. Retro-uterine fibroids might become adherent in the floor of the pelvis and become as immovable as intra-ligamentous tumours. Cervical fibroids were the most obstructive of all and, like the intra-ligamentous variety, could not be lifted out of the pubes or pushed up from below. In the puerperium involution was retarded but not impaired. The real danger at this stage was sepsis from decomposition of retained portions of placenta, and this readily affected the fibroids. As regards treatment, if the patient were first seen before fœtal viability and if obstruction appeared probable attempts to elevate the pelvic fibroid might be made by gentle digital or hydrostatic pressure in the Sim's or knee-chest position, forcible attempts being avoided. Failing success an attempt might be made under A.C.E. mi

foot of the bed was a useful

agreed that induction of abortio

be abandoned. This latter proced

were nearly out of reach and even

factorily dilated, the distended uterine cavity rendered complete removal of the placenta difficult. In fact, the easier it was to induce abortion the less necessary was it to interfere at all. Induction then left the woman with a fibroid and did nothing towards enabling her to have a living child in the future. An expectant attitude should be adopted. The existing pregnancy might be the only chance of the woman having a living child and therefore every opportunity should be afforded her of going to full term. Myomectomy before fœtal viability was now the ideal indication when pressure symptoms developed before fœtal viability and it had the advantage that if necessary hysterectomy might be effected. Hysterectomy before fœtal viability was required after incomplete abortion where hæmorrhage or sepsis was present. If the patient were first seen after fœtal viability expectant treatment should here again be adopted if the mother's life were not endangered. Reposition might be tried even up to full term. One thing was certain, a high degree of danger was associated with attempts to deliver by forceps, version, or embryotomy. Vaginal enucleation might be indicated in place of pan-hysterectomy where the fibroid was situated in the cervix. But in all other cases of obstructing fibroid abdominal section should be employed and the child delivered by Cæsarean section. Thereafter a number of procedures presented themselves for differential consideration. To proceed no further than the Cæsarean section would rarely be right. Recorded results did not testify that bilateral oöphorectomy would be followed by atrophy of the fibroid. Myomectomy was sometimes indicated after the Cæsarean section. When abdominal hysterectomy was performed preference should be given to the supra-vaginal operation with retro-peritoneal treatment of the stump by Baer's or Chrobak's methods. If pan-hysterectomy were indicated Doyen's method was the best and one ovary at and forms of administration was shown on the well-arranged stall of Messrs. Wyleys, Limited, of Coventry. Amongst these may be mentioned the non-alcoholic tinctures prepared with a glycerine basis, fluid extracts, antiseptic pellets, hypodermic pellets, gelatin-coated pills, and a non-acid syrup of the glycerophosphates of lime, soda, potash, magnesia, and iron. Amongst the interesting number of preparations shown by Messrs. Burgoyne, Burbidges, and Co. of 12 and 16, Coleman-street, London, E.C., was "salocreol," a combination of salicylic acid with beechwood tar. It is regarded as, in fact, a salicylic ester of creasote which has been found valuable in erysipelas in the face, in chronic and muscular arthritis, and in lymphadenitis. Specimens of lactate of silver, citrate of silver, and colloidal silver were also shown by this firm. Messrs. C. J. Hewlett and Son of 35-42, Charlotte-street, London, E.C., publish an interesting pamphlet on new remedies and special pharmaceutical preparations, specimens of which for the most part were exhibited at their stall. Amongst the drugs exhibited were heroine, lecithin, urea, and phenolphthalein. They showed in addition a number of antiseptic preparations as well as clinical tests for urinary analysis and the apparatus already noticed in our columns which is designed to facilitate the application of Unna's pastes in skin affections. Antiphlogistine was the feature of the stall of the Denver Chemical Manufacturing Company of New York and 110, Cheapside, London, E.C. As we have already pointed out, antiphlogistine is an undoubted advance on the old-fashioned cataplasm. It is a soothing and perfectly clean application. There is a special preparation exhibited by the Charles H. Phillips Chemical Company of 14, Henrietta-street, Covent-garden, London, W.C., which calls for notice. It is milk of magnesia, an emulsion of pure hydrate of magnesia which is specially valuable as an antacid. We have already pointed out its advantage in our analytical columns. Specimens of ovo-lecithin, the definite organic phosphorous compound obtained, amongst other things, from egg, were exhibited by Billon's Ovo-Lecithin Depôt of 16, Water-lane, Great Tower-street, London, E.C. The favourable results which lecithin appears to give in encouraging cell multiplication should draw attention to the value of this organic phosphorous compound in depressed conditions of nutrition. Local pharmacy was very well represented by Messrs. J. T. Davies and Co. of 13 and 14, Walter-road, Swansea, who, in addition to drugs, showed a large assortment of medical and surgical instruments and cotton-wools, lints, and gauze. Messrs. Philip Harris and Co., Limited, of 144 and 146, Edmund-street, Birmingham, presented an interesting series of pharmaceutical preparations to view, while Messrs. Arthur and Co. of 69, Berners-street, London, W., exhibited their well-known compound of gold, arsenic, and bromine known as bromaurum and a number of other preparations which we have noticed on previous occasions. On the whole it may be said that the drug section was not so well represented as in former years; there were certainly fewer novelties. Latterly, the tendency has been in favour of the number of special foods exhibited predominating over the number of drugs, but this year the food section also was not on a very large scale.

II.—FOODS AND FOOD PRODUCTS.

As already mentioned this section was comparatively limited in scope and the absence of the usual variety of milk foods and milk products was noteworthy. Indeed, most of the food products shown were preparations derived from meat. The British Somatose Co. Limited, of 165, Queen Victoria-street, London, E.C., showed their somatose preparations which have already been described in THE LANCET. Mention may be made in particular of liquid somatose which is a powerful nutrient preparation containing 80 per cent. of beef albumin converted into soluble and uncoagulable proteose. The powdered somatose may be used with great advantage as a nourishing adjuvant to all kinds of foods. The preparations of iron-somatose and milk-somatose are also of interest. We have also described in the analytical records from THE LANCET laboratory the preparations of the Myosin Albumin Meat Extract Company of 107, Strand, London, W.C. Thus mamesin is a preparation of pure myosin albumin containing also the extractives of the meat and the iron and phosphorus in organic combination. Mamesin is a direct nutrient. Marmite resembles beef extract very closely as regards appearance and taste, while it contains albumoses although it is an entirely vegetable extract. It has been used as a nutrient with advantage over meat preparations in gouty and rheumatic conditions. Specimens were shown by the Marmite Food Extract Company, Limited, of 40, Mincing-lane, London, E.C. Vegox, on the other hand, is an extract prepared from both vegetables and beef by Vegox, Limited, of 53, New Broad-street, London, E.C. As we have already pointed out in our analytical columns, Vegox is a highly concentrated preparation of nourishing value and possesses an appetising flavour. Messrs. Cosenza and Co. of 95, Wigmore-street, Cavendish-square, London, W., exhibited Maggi's well-known soups. These included the consommé and tonic bouillon contained in a clear solidified form in capsules, and the "Cross Star" soups which were supplied in large quantities to the troops in South Africa. The Liebig's Extract of Meat Co., Limited, of 4, Lloyd's-avenue, London, E.C., showed specimens of their well-known extract, lemco, as well as oxo, their fluid beef. The latter contains meat fibre as well as the albumins and extractives of beef. A very large assortment of specialities for invalids was exhibited by Messrs. Brand and Co., Limited, of 11, Little Stanhope-street, Mayfair, London, W. Attention may be directed in particular to their nutrient powder and their fever food which is a palatable jelly prepared from beef, eggs, and cream. Bovril, Limited, of 152 to 166, Old street, City-road, London, E.C., exhibited a large number of foods for invalid and for general use. Amongst these were a number of special rations, besides the many series of food containing bovril. On the same stall were shown specimens of virol which contains an active malt extract associated with red bone marrow, eggs, and lemon juice. We have already alluded to the peculiar value of virol as a reparative. The Aylesbury Dairy Company, Limited, of St. Petersburgh-place, Bayswater, London, W., were the only large milk company represented. They showed specimens of humanised milk, peptonised milk, sterilised milk, and many other milk preparations. Condensed milk was represented by one firm, that of Mr. Henri Nestlé of 48, Cannon-street, London, E.C. Amongst the preparations shown were condensed Swiss milk containing the whole of the cream and a special food for infants and invalids. Messrs. Callard and Co. of 65, Regent-street, London, W., exhibited their starchless and sugarless foods designed chiefly for sufferers from diabetes and obesity. Mention should also be made of the breads and biscuits enriched with casein and of the sugarless marmalade, chocolate, jellies, and starchless flours. There were many interesting food preparations designed for the use of the diabetic and the dyspeptic on the stall of the Cheltine Foods Company, Limited, of Cheltenham. The exhibits included an infants' food, soluble maltose food, and malted milk chocolate. Maltova is an undoubtedly valuable food, consisting of a combination of fresh eggs with malt extract. The preparation was exhibited by Maltova, Limited, of Leeds and London. The preparation has been dealt with in THE LANCET laboratory. Messrs. J. van Abbott and Sons of Baden-place, Crosby-row, Borough, London, S.E., exhibited their well-known food preparations for diabetic patients. We may, in particular, commend the midolia biscuit which has the advantage of being cheap, while its composition is adapted for special requirements. The exhibit included gluten bread and biscuits, soya biscuits, and almond flour. Mellin's Food, Limited, of Stafford-street, Peckham, London, S.E., exhibited their well-known malted food, besides some biscuits and chocolate. Messrs. Broomfield and Co. of 83, Upper Thames-street, London, E C., exhibited a highly refined vegetable fat called albene, which is recommended for cooking and baking purposes in the place of lard, margarine, and butter. It has the advantage of keeping sweet and does not get rancid. The shredded whole-wheat biscuit and "triscuit" are well known as entire cooked preparations of the wheat berry, showing on analysis a maximum proportion of the nourishing constituents of wheat. These preparations were exhibited by the Shredded Wheat Company of 6 and 8, Eastcheap, London, E.C. Patent groats and patent barley were the subjects of exhibition by Messrs. Keen, Robinson, and Co., Limited, of Garlick-hill, London, E.C. The former is admirable for making a nourishing gruel and the latter, as is well known, serves excellently for diluting cow's milk for infants' use. The only cocoa represented was that of Messrs. Cadbury Brothers of Bournville near Birmingham. As our analysis has shown, Cadbury's cocoa is not manipulated with alkali or alkaline salts. It yields, in particular, an amount of mineral matter consistent with an absolutely pure cocoa deprived of the greater part of its fat.

Medical News.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the July sittings of the Scottish Conjoint Medical Board in Glasgow the following candidates passed the respective examinations.—

Beveridge M'Gregor, Anderson's

course)—Robert Roberts, William
Vallen Strickland, Glasgow School
ge, Belfast, and John Cretin, Uni

UNIVERSITY OF ABERDEEN.—The following degrees and diploma have been conferred on the undermentioned.—

Degree of Doctor of Science (D Sc)—Charles McLeod, M A, Aberdeen, and John Rennie, B Sc, Aberdeen

Degree of Bachelor of Science (B Sc)—George Alex Burnett M A, Echt (with special distinction in Botany), William Dawson
Henc logy),
and,
Degree M A,
M B , New
Mact East
Afric Simon
John M.B,

James Macrae, Stornoway James Webster Miller, Ardclach, Nairn, Frank Le Quesne Pelly, Londonderry, Ireland, Frank Gellie Tennant Peterkin, Aberdeen, George Baird Sleigh M A Strichen, Aberdeenshire, Isabel Copland Smith, Aberdeen, ‡§Wm Clarke Souter, Nigg, Aberdeen

Degrees of Bachelor of Medicine (M B) and Master in Surgery (C.M) (Old Ordinances)—George Charles M Gregor Keith Banffshire, Allaster Lachlan Napier Maclean, Auckland New Zealand

‡ With second class honours
§ Passed Final examination with "distinction"

Diploma in Public Health—Kenneth Fraser, M B., Ch B Aberd, Inverness, John Halley, M B, C M Aberd, Aberdeen, James Macfarlane M B, Ch B Aberd, Aberdeen, Arthur John Milne, M B, Ch B. Aberd., Aberdeen, John Stuart Rose, M B, Ch.B. Aberd, Grantown-on Spey, James Andrew Simpson M B, Ch B Aberd, Alford, Robert Alex. Slessor, M A., M B, Ch.B Aberd, Aberdeen, William Edward Taylor, M B, Ch B Aberd, Aberdeen, and George Clark Trotter, M.B, Ch.B. Edin, Edinburgh.

10 most dis-
ider Callam,
al); and the
Macdonald,

The following candidates have been successful in the examinations indicated:—

First Portion of the First Professional Examination—Ernest E Alloway, John Anderson, Isabel M Asher James C Bell, Alexander A Bisset, John Brown, Robert W. Chalmers, James B Cruickshank, James G Danson, William J. Gerrard, Adam Gilchrist, Fiddes M Greig William B Hargraves, Matthew Hay, Mabel Hector, Elizabeth J. Innes Edward Johnson, James W Littlejohn, William G Macarthur, Margaret C Macdonald, James D Mackay, Agnes Mackinnon, Daniel J M Kinnon, William J M'Intosh, Farquhar Macrae Allan Massey, William Mearns, Arthur J Milne, James A Milne, Tom B Nicholls, Ian Ogilvie, Secosseue Piarroux, Douglas Porter John Rennie, Alexander Stewart, William L Stewart, Robert Tindall, William G. Watt, and

Paul B Roth, Robert F Russell, John Sangster, James A Scharonguivel, Donald G Skeen, Charles M Smith, and Robert N Thomson

Third Profes
William G
Helen M C
Alexander
A F. Schul

‖ Passed with distinction ¶ Passed with much distinction.

The following have been appointed additional examiners for four years —Zoology. Philip J. White, M D. Edin, professor of zoology in the University College of North Wales, Bangor Physiology: Benjamin Moore, M A., D Sc R U.I., professor of bio chemistry, University College, Liverpool Medicine Charles Oliver Hawthorne, M.D. Glasg, London Midwifery · James Haig Ferguson, M D Edin, lecturer in midwifery, School of Medicine of the Royal Colleges, Edinburgh D P H. William Bruce, M A., M D, LL D, Dingwall

THE JENNER INSTITUTE OF PREVENTIVE MEDICINE—An extraordinary general meeting of the members of the Jenner Institute of Preventive Medicine was held on July 22nd in the board room of the institute, Chelsea-bridge road, to consider a motion to alter the name of the institute to "The Lister Institute of Preventive Medicine." Sir Henry Roscoe occupied the chair and in moving the proposal said that out of motives of delicacy, which they all appreciated, Lord Lister, the chairman of the institute, had not attended the meeting Sir Henry Roscoe read extracts from the memorandum which explained the reasons that had induced the governing body to propose the change of name, and said members would be glad to know that the name proposed had met with the full approval of Lord Iveagh who had been such a munificent donor to the institute He was sure that all present would agree that they could not have a name which was more consonant with the feelings of those who were interested in the progress of preventive medicine than that of the Lister Institute. He thought it would be approved not only by the members present but by all the members and also by the medical profession generally and the public at large. Sir Joseph Fayrer, in seconding the motion, said he had never before seconded a motion with greater pleasure. He did not think it possible to have a more appropriate name than the one proposed. Dr W. J Simpson supported the motion which was unanimously adopted. A second meeting will be held on Friday, August 7th, when the resolution will be submitted for confirmation.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—On Saturday, July 18th, the annual distribution of prizes was held in the board room of the hospital, in the presence of a large gathering of the students and their friends, the members of the staff, and governors of the hospital. Mrs.

DETERIORATION OF MICROSCOPE LENSES AND INDIA-RUBBER GOODS IN HOT CLIMATES.

THE following is from a paper on the Preservation of Instruments in Bengal, read by Mr. Paul Bruhl before the Calcutta section of the Institution of Electrical Engineers on March 27th and printed in the London *Engineer* of July 24th.

One of the most powerful corroding agents employed by nature is carbonic acid. We are accustomed to look at carbonic acid as a weak acid ...... but when the acid is more concentrated under the action of high pressures the action is markedly different. Now capillary action has a similar effect on concentration as a large increase of superincumbent pressure; and the carbonic acid present in the film of moisture which covers all articles during the rainy season, or in the film separating two surfaces in apparent contact, is in a much more concentrated state than corresponds to the atmospheric pressure. Such carbonic acid is capable of displacing the silicic acid of natural and artificial silicates. ...... Microscopists know how difficult it is to keep a stock of blank glass slides. If you keep your glass slides in contact with each other they are sure to grow dim ...... sometimes even if placed in alcohol. An absolutely safe plan is to tie two threads round each separate slide near its two ends, form a number of slides into bundles and keep them in alcohol or formalene. ...... The worst place to keep microscope objectives in during the rainy season is the cylindrical brass case provided for them by the makers. Microscope lenses, in fact lenses and glass parts in general, do not stand close confinement for any length of time. Constant use is the best preservative. In any case place the lenses in a capacious box and air them frequently. ...... Some of the modern kinds of glass have to be tended very carefully ...... otherwise they will soon become dim evenly all over their surface. ...... The best way of keeping rubber stoppers is to put them into a wide stoppered glass jar, at the bottom of which is placed an inverted perforated dish to serve as a support for the stoppers after pouring some oil of turpentine on the bottom of the jar. Stoppers which have acquired a hard cracked surface can be softened by proceeding similarly, only using chloroform instead of turpentine. A good way of preserving rubber tubing is to give it a coating of glycerine.

ORGANO-THERAPY.

DR. MARPMANN of the Hygienic Laboratory in Leipsic has sent us an account of some unexpected results which have been obtained in that institution with the root of an Indian plant. When various extracts and other preparations of this root, the name of which he has written very indistinctly, were administered to the human subject, even in very small doses, they produced a transient sedative effect, followed by pain in the stomach and violent headache. Rabbits, weighing three or four pounds, were killed in four hours by the subcutaneous injection of 0·1 milligramme of the ethereal extract of the root. When, however, injections of 0·01 milligramme were given and continued in increasing doses for ten days such toleration was established that the rabbit was unaffected by injections of one milligramme and upwards, quantities which, if given at first, would certainly have been fatal. From these rabbits thus "immunised" it was found that a substance could be prepared which was useful in the treatment of neurasthenia while possessing the toxic qualities of the root in only a slight degree and none of its disagreeable after-effects. An addendum to Dr. Marpmann's communication states that it has been found possible by passing arsenical compounds through the bodies of animals to produce "organo-preparations" in which, although they contain arsenic, the ordinary physiological effect of that element is materially modified.

THE ADMINISTRATION OF CALCIUM CHLORIDE.

To the Editors of THE LANCET.

SIRS,—Your correspondent "Z" will find that the liquid extract of liquorice root or peppermint water and simple syrup most effectually disguise the taste of calcium chloride. One hour after a meal is the best time for administration, or the drug may be given by means of enemata as used by Gross in quantities of 200 cubic centimetres (six and two-third fluid ounces) of an aqueous 5 per cent. solution. Mr. A. W. Mayo Robson, in THE LANCET of April 12th, 1902, p. 1024, mentions that he gives as much as 60 grains three times a day by the rectum.

I am, Sirs, yours faithfully,
July 28th, 1903. W.

KEYMER BRICK AND TILE COMPANY, LIMITED: A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—I notice in THE LANCET of July 25th, p. 257, you publish a judgment by Mr. Justice Joyce granting an injunction against the above company for creating a public nuisance. As several medical men and friends have read this notice as referring to my estate, Coombe Hill, Sussex, I should be much obliged if you would be kind enough to publish this disclaimer, as otherwise it is calculated to do my property and myself serious injury.

I am, Sirs, yours faithfully,
Coombe Hill, Sussex, July 28th, 1903. W. E. KEYMER.

THE RAINFALL OF JUNE, 1903.

THE remarkable rainfall of last June, which caused much inconvenience and damage by flooding in the Thames Valley, is the subject of a detailed analysis in the July number of *Symons's Meteorological Magazine* (published by Edward Stanford, Long-acre, London, W.C.). During that month the rainfall was very unequally distributed over the British Isles, the wettest part having been the south of England and the driest part the north of Ireland. A broad, dry belt in which the fall scarcely anywhere reached two inches (and nowhere reached the average for the month) stretched from North Wales and the Mersey to the Humber and the Wash, separating a slightly higher rainfall on the north from an excessively high rainfall on the south. The wet zone stretched from west to east across the country. Along the axis of it from Swindon to Southend, for a distance of 110 miles, the rainfall exceeded six inches, being more than three times the average amount. This extremely heavy fall prevailed over the greater part of the valley of the Thames and the Lee; in the south, especially in the neighbourhood of Croydon, it exceeded seven inches and at Carshalton it reached the unprecedented figure of 8·91 inches. It is estimated that in the ten days between June 8th and 19th, during which all the rain fell, the amount of water deposited on the drainage area of the two rivers, the Thames and the Lee, was 1,494,000,000 tons, or 334,560,000,000 gallons. One inch of rain over one square mile of area is equal to about 64,660 tons of water, or 14,483,000 gallons. Observations made at Camden-square in London showed that rain to the depth of 6·43 inches (which was the whole of the month's rain) fell in those ten days, and on the assumption that this rate held good for the whole metropolitan county the amount of water deposited in London during the period when it was falling averaged 433,000 tons, or 97,000,000 gallons, per hour. This total of 6·43 inches for the month of June has only been exceeded in June, 1878—with 6·71 inches, and only on one other occasion in any month—namely, in August, 1878, with 6·72 inches.

ASTROLOGY.

To the Editors of THE LANCET.

SIRS,—Your readers may be interested to learn that belief in astrology is not yet extinct in Norfolk. A little time ago I was called in to see a patient who was suffering from an advanced cancer of the parotid gland, from which he has recently died. This patient before seeing me had consulted a quack at North Elmham because he "cured diseases by the stars." After taking his money this "cunning man" told him the tumour could be cured, but that in order to cure it he should need to know "what star the patient was born under." The poor old man went away sorrowful as he could not supply the necessary information and he died under the impression that the disease was curable if only the demands of the quack could have been met.

I am, Sirs, yours truly,
Fakenham, July 28th, 1903. F. L. POCHIN, M.B., C.M. Edin.

PROTRUSION OF THE NAVEL.

To the Editors of THE LANCET.

SIRS,—I should be obliged for any hints in regard to the treatment of an abnormally protruding navel in a boy, aged three months. I have tried simple pressure without success.

I am, Sirs, yours faithfully,
July 28th, 1903. RAMUS.

◆

S.W.—We are sorry to be unable to refer our correspondent to any book or journal which describes the operation in question. There is no doubt that the skin does absorb oils and fats if applied by rubbing, and the most obvious proof of this is the old-fashioned method of giving mercury by inunction. The absorption of the mercury was soon apparent and as the drug was intimately mixed with the fat the presumption is that the fat was absorbed also. There are various preparations of iodine dissolved in fatty substances which if rubbed on the skin rapidly disappear, when iodine can be detected in the urine and the taste of the drug can be perceived in the mouth.

Ethical.—The paragraph is an unfortunate one, but there is no reason to suppose that the medical man in question is in any way responsible for its insertion.

L.R.C.P. & S.—We think if our correspondent wrote to the secretary of the Jenner Institute of Preventive Medicine that he would obtain the information which he requires.

M.R.C.S.—The preparation in question is, we believe, an organic compound of bromin.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received: *Yorkshire Post, Yorkshire Daily Observer, Staffordshire Sentinel, Times of India, Aberdeen Free Press, Pioneer Mail (India), Dublin Evening Telegraph, Echo, Bradford Observer, Daily Express, Globe, Medical Brief (St. Louis, U.S.A.), Knowledge, Westminster Gazette, Windsor and Eton Express, Derbyshire Courier, Derbyshire Times, Reading Mercury, Herts Advertiser, Daily Telegraph, Manchester Weekly Chronicle, &c.*

METEOROLOGICAL READINGS.

(*Taken daily at 8.30 a.m. by Steward's Instruments.*)

THE LANCET Office, July 30th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.							Remarks at 8.30 A.M.
July 24	29·76	S.W.	1·39	120	73	56	56	58	Raining
" 25	29·99	S.W.	...	126	72	55	57	62	Fine
" 26	29·72	S.	1·09	111	67	58	60	62	Cloudy
" 27	29·83	S.W.	0·52	107	65	55	57	62	Cloudy
" 28	29·69	W.	0·12	94	65	57	57	62	Cloudy
" 29	29·60	W.	0·42	114	67	58	57	61	Cloudy
" 30	29·63	N.W.	0·44	103	66	54	56	61	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College [illegible] Mark's [illegible] Throat [illegible] 30 P.M.). Throat Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WE [illegible] London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THI [illegible] (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRI [illegible] Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho square (2 P.M.).

SATURDAY (8th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them! Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently *inquiries concerning missing copies, &c., should be sent to* the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

important provision and one likely to promote the cure of the patient and to prevent him from leaving the institution before he has given the treatment a fair trial. If the sum paid to the relatives is insufficient the insurance institution by its influence with charitable organisations is able to augment the allowance. The duties of the insurance authorities extend to endeavours to procure suitable employment for those who are leaving the sanatorium and among the rules connected with one of the insurance institutions is the following: "At least three weeks before dismissal from the sanatorium every patient has to request the inspector of the institution to apply for work at the appropriate place. It is the purpose of the sanatorium to restore the capability for work and it is necessary to make use of this capability at once on the return home so that the absence of means for maintenance and the want that would follow do not cause the advantage to be lost which has been gained by a successful cure at the sanatorium." There is only one more point with which I need trouble you, but it is an important one. The insurance institutions invest their surplus capital in a manner to promote the health of the worker by, among other things, lending at a low rate of interest money for building workmen's dwellings. In this sense the insurance force seems to me to be performing an admirable preventive work.

As to the influence of this insurance system upon the health of the people I will quote the following passages from a German report: "The three branches of the German National Workmen's Insurance—the sickness, accident, and invalidity insurance—supplementing one another mutually, form a complete organisation and have resulted in the formation of a new working man's code which in the inevitable fluctuations of modern industrial life will afford to all those in need of assistance a welcome aid and in its further development cannot fail to exercise a great and salutary influence on the economical and social conditions of the working people—indeed, on the entire nation." As regards the improved social condition which I wish here more particularly to accentuate I would draw attention to one more passage from the German work to which I have already referred: "It is comprehensible that workmen's insurance with its far-branching institutions and performances, must affect public life in many ways. Through it the legal condition of the workman is raised to a higher standpoint. In place of the former almsgiving the workman has now a claim on sick relief and pension. The social condition of the workman is advanced by the assurance of relief which extends itself also over the family in case of sickness, incapacity from work, or death. In spite of the burden cast upon the employer through workmen's insurances wages have advanced and production has increased in the German Empire. …… The workmen's insurance has also done much in furthering the hygienic conditions of the working people. By the circumstance that, in cases of sickness and incapacity from work, indemnity is to be paid the endeavours to avoid and prevent dangers of sickness and accident receive not only a moral but also a financial impetus. That the health of the workman is guarded or restored as soon as possible lies in the common interest of the managing boards of the sick clubs, of the Employers' Association, and of single employers, whose zeal for social reform is furthered by the insurance institutions on the one side and of the workmen themselves on the other. The consequence is that more and more is being done for better and more thorough cure. *The working people receive more and more care from the physician.*" (The italics are mine.) Since that date there are signs in this country that a more hopeful view may ere long be taken and I see that Dr. A. P. Hillier, the secretary of the National Association for the Prevention of Consumption, has recently taken to Berlin a deputation from the friendly societies of this country in order that they might see for themselves the advantages of the German methods and determine to what extent they are practicable in England.

It has to be borne in mind that the insurance system in Germany is dependent upon the united efforts of the employed, the employer, and the State. The matter is largely a social and political one and must be decided upon those grounds, but I have dealt with it here at some length because, in common with Sir John Burdon Sanderson,[2] I feel that in this compulsory insurance against invalidity the Germans have a system the value of which it is difficult to over-estimate, and I say this, not because this system aids so materially the erection and maintenance of sanatoriums, but because the material benefits which the insurance system provides in ill-health of all descriptions must obviously improve the resistance of the host against the onslaught of the tubercle bacillus. As an illustration of my point I would add that by the provisions of the Acts in question it is enacted that when it is feared incapacity for work may ensue, medical treatment is granted with a view to *preventing* disablements. This is preventive medicine properly understood. This workman's insurance system in Germany, as I have already said, was initiated by the Emperor William I. in 1881.

At the time of the British Congress in 1901 the honorary secretaries of the State section endeavoured to awaken the interest of English insurance and friendly societies in this matter. They were able to procure a valuable contribution from Mr. E. W. Brabrook, C.B., chief registrar of the friendly societies in this country, and an exhaustive essay from Mr. Hoffman, statistician to the Prudential Insurance Company of America. Both these gentlemen naturally approached the problem in a purely critical spirit and the conclusion at which they independently arrived was that it was not in the interests of either insurance societies or friendly societies to contribute towards the erection or maintenance of sanatoriums.

The progress of the movement for the erection of sanatoriums in Germany has been altogether remarkable. Professor von Leyden, speaking in the name of the German empire at the British Congress in 1901, stated that there were 22 sanatoriums in 1899, 39 in 1900, and 59 in 1901. From an interesting account given by Dr. Pannwitz in the June (1902) number of the German periodical *Tuberculosis* it would appear that in the spring of 1902 there were no fewer than 89 public sanatoriums either in existence or in process of being erected. This total is exclusive of the 20 private sanatoriums which were then in existence in Germany. As we have already seen no fewer than 37,000 patients were treated in these sanatoriums in 1901.

FRANCE.

Briefly summed up, the principle which the French have endeavoured to apply better than any other nation is that of the early recognition of the disease by the establishment of the anti-tuberculous dispensaries. France has recognised that it is at present impracticable to provide sanatoriums for the whole of the 400,000 to 500,000 tuberculous persons believed to exist in the Republic and has appreciated, too, that, even were this practicable, the detection and prevention of tuberculosis, as well as the treatment of patients discharged from sanatoriums, would still be an essential portion of the scheme in its entirety. It was this belief that led Professor Calmette, Professor Landouzy, and Professor Letulle to lay down at the British Congress on Tuberculosis the following expression of opinion: "We wish, without in any way prejudicing the rôle which the sanatorium must play in the battle against consumption, to urge upon governments, local sanitary authorities, Poor-law authorities, and charity organisations the *necessity* of encouraging the institution of anti-tuberculous dispensaries as the best means of struggling against tuberculosis in the working classes." The idea of these institutions appears, as far as I can ascertain, to have originated with Dr. Bonnet-Léon, and it was brought before the French Commission on Tuberculosis by Professor Calmette, director of the Pasteur Institute at Lille. Professor Calmette gave an excellent account of the operations of the dispensary inaugurated at Lille in the Transactions of the British Congress. Shortly stated, the object of this and kindred institutions is to educate the public in hygiene and to afford assistance to the poorer workmen who are suffering from tuberculosis. In Professor Calmette's opinion dispensaries of this nature should *precede* and *complete* the foundation of sanatoriums. In the first instance they afford an opportunity for selecting suitable patients for sanatoriums and in the second they offer facilities for carrying out after-treatment of those who have already sojourned in sanatoriums. Belgium has also developed this dispensary idea to a very high degree. The example set by Dr. Bonnet-Léon and Professor Calmette has been followed by others and a society has been founded in Paris with the object of furthering the development of such institutions, while at Arras and Nantes similar institutions are in course of construction.

There are now in France several sanatoriums of a private character. There is at Angicourt (Oise) a sanatorium for the [illegible] sanatoriums either erected [illegible] poor of other places, such as [illegible] e also several hospitals for [illegible] to those at d'Ormesson and Villiers-sur-Marne, both of which have agricultural colonies *connected with them.*

---

[2] Our Duty to the Consumptive Bread-earner, Brit. Med. Jour., July 6th, 1901.

NORWAY.

As explained in my last lecture I am anxious to bring to your notice the conditions as regards Norway because the death-rate from phthisis in that country shows no sign of diminution. It is probably owing to this fact that the Legislature has determined to attempt to grasp the problem by a series of special enactments directed against the disease. By the Act which came into operation at the beginning of 1901 it is obligatory to notify to the medical officer of health (1) pulmonary or laryngeal tuberculosis attended with tuberculous expectoration; (2) fistulæ in the bones, the joints, or the glands which the physician regards as being of a tuberculous nature; (3) lupus, if attended with discharge; (4) tuberculous affections of the alimentary canal or of the urinary system provided that the tubercle bacillus had been demonstrated; and (5) death due to tuberculous disease such as the above or change of abode in similar circumstances. The information conveyed by this means to the medical officer of health must be regarded by him as absolutely confidential. Notification may, at the option of the local sanitary authority and with the consent of the State, be imposed upon the consumptive person each time the abode is changed. It is the duty of the attending physician to insist upon cleanliness in the house of the patient and if he be unable to effect this the duty devolves upon the medical officer of health who, if necessary, can order the removal of the patient to hospital; husbands and wives may not be separated. The medical officer of health may forbid tuberculous persons from taking part in the preparation or sale of food-stuffs and forbid tuberculous females from acting as nurses or attendants on children. I am informed by Dr. Holmboe, the director of the medical service of Norway, that in the carrying-out of the foregoing regulations no serious friction has arisen, but he adds that it is but very rarely that patients are sent to a hospital against their will. The right was exercised in Christiania in only four cases in 1901.

The Norway regulations are, so far as I am aware, the most comprehensive of any in existence and we shall all watch with interest their effect upon the behaviour of tuberculosis in Norway. As regards sanatoriums Dr. Hölmboe tells me that at present there are only two such institutions for the poorer classes, but for *isolation* proper as opposed to *cure* use is made of the general hospitals or of institutions erected for the purpose of isolating the tuberculous sick who are a danger to the community.

I am afraid that I shall be unable in this lecture to deal as I had intended with Denmark, Austria, and Hungary, and I must therefore pass on to consider what is being done in

ENGLAND.

I propose now to consider what is actually being carried out or contemplated in England with regard to the control of pulmonary tuberculosis, and in the first place let us look at the prevalence of the disease in this country. Dr. J. F. W. Tatham tells us that, with a few trifling exceptions, there has been during the last 50 years a decrease in the mortality ascribed to phthisis at every age period and in both sexes, but that the rate has varied widely and has been much greater in the female than in the male sex. The figures must, he warns us, be taken for what they are worth and he thinks that the decrease may not be wholly real. Better diagnosis and improved nomenclature may account for some of the decline. The greatest incidence of the disease is at present at the age period of from 45 to 55 years for males and from 35 to 45 years for females and in this sense there has been a material shifting of age incidence since the period from 1851 to 1860. In the year 1900 there were in England 42,987 deaths from pulmonary tuberculosis.

Assuming, as has been generally done, that a phthisical patient lives on an average three years there are likely to be about 120,000 persons suffering from pulmonary tuberculosis at the present time. But the record of the post-mortem room tends to show how very fallacious these figures are likely to be. Professor Clifford Allbutt in an address which he gave at the London Congress put this aspect of the question in a telling fashion when he said, "I am guilty of no extravagance when I suggest that one-third of you who hear me, wittingly or unwittingly, are or have been infected with tubercle. Some of us, ailing indefinitely, may have been the innocent means of infection to others, so secretly stalks infection in our midst"

What is the machinery in operation for ascertaining the whereabouts of both the recognised and unrecognised cases?

Notification.—The number of urban and rural district councils which are adopting the voluntary notification of pulmonary tuberculosis is steadily increasing, but unfortunately it is very difficult to ascertain the precise number. Assuming, however, no check is given to the progress by the production of a logical reaction against extreme measures the near future may see a very considerable adoption of voluntary notification. It cannot, however, be denied that in some places there is a distinct disinclination on the part of the medical practitioner to notify owing to the ban under which such notification may perhaps place the patient. The future, in my view, depends very largely upon the discretion with which the knowledge acquired by notification is utilised. Such pioneers in the movement as Dr. J Niven of Manchester and Dr. A. Newsholme of Brighton [illegible]nistration of [illegible] if their admi[illegible]ell. Logically, notification is no doubt necessary, if by the means proposed we are to "stamp out," as it is called, the disease, but unfortunately the post-mortem records show us that in addition to the notified cases we must still have a considerable number of unnotified cases potent for harm; and we have to bear in mind that the attempt to establish a leper class is not unlikely to lead to an uncertain amount of concealment of active tuberculosis. These considerations raise the important point as to whether pulmonary tuberculosis *shall be compulsorily notifiable.*

If such compulsory notification renders it necessary to subject those suffering from the disease to all or many of the disabilities under the Public Health Acts to which those who are suffering from the acute infectious diseases are legally liable, there can, I think, be little doubt but that the answer *to the question* is in the direct negative. Were it otherwise, a patient suffering from pulmonary tuberculosis would be constantly traversing the statutes when he ventured outside his own door or entered any public institution or conveyance. Assuming, however, that the disease is placed, as I have advocated, *in an entirely separate category* from the group in which what are called the acute exanthemata are ranged and that the information obtained by notification is discreetly used, there would seem to be no very great difficulty in the way of a modified form of obligatory notification; for instance, it might be well to have compulsory notification of pulmonary tuberculosis in the case of patients occupying tenement houses or other places where the first principles of cleanliness are not observed and where the people live much in common with tendency to overcrowding.

I have very grave doubts as to whether it is desirable even in regard to voluntary notification to include any forms of tuberculosis other than pulmonary; it might, I think, in the first instance, be well to limit notification to cases of pulmonary tuberculosis in which the condition and environment of the patient are such that danger to the public is liable to accrue. As to this, I may again quote Professor Koch who, when referring to the subject of notification, said: "Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but *only those that owing to their domestic* conditions are sources of danger to the people about them." There is, I think, much to be said for this view. For the [illegible] the *relative* nature of the problem. I agree, in fact, with the motion which was proposed at the Congress in London by Dr. Newsholme and which in the form in which it was eventually carried stood thus:—

> That the voluntary notification of phthisis attended with tuberculous expectoration, and the increased *preventive* action which it has rendered practicable, have been attended by a promising measure of success, and that the extension of such notification should be encouraged in all districts in which efficient sanitary administration renders it practicable to adopt the consequential measures.

If compulsory notification is to be attempted it should, I think, take the form of a period of trial, say for five years, in one of our large towns, and I have been interested to hear that the corporation of Sheffield, acting no doubt under the advice of Dr. John Robertson, its medical officer of health, has now (August, 1903) a Bill before Parliament which embodies a clause providing for the compulsory notification of pulmonary tuberculosis. If this Bill with the clause referred to receives Parliamentary sanction an interesting experiment will have been set going in Sheffield. The clause in question gives power to the officials of the corporation to enter any house in which there is a patient suffering from pulmonary tuberculosis and to perform any necessary disinfection or cleansing. I am interested to note that the clause relates to pulmonary tuberculosis only and that "no provisions contained in any general or local Act of Parliament relating to infectious disease shall apply to tuberculosis of the lung or proceedings relating thereto under this section." This means that the disease is placed, as I suggested in my first lecture, in an entirely separate category. The information derived from notification is, I understand, to be treated as absolutely confidential and the necessity for the rigid observance of such secrecy seems to be accentuated more and more every day as one reads that in certain places outside of England it is an offence against the law to entertain in one's house a tuberculous subject who is not a relative.

Facilities for bacteriological examination.—If we are to determine early and with accuracy the existence of cases of pulmonary tuberculosis, and as to the importance of early recognition both for the sake of the patient and the public there can be no doubt, it is desirable that every facility shall be afforded to the members of the medical profession to obtain the trustworthy examination of suspected sputum without delay and without expense. The busy medical practitioner can ill afford the time to make such examinations himself and furthermore he has not the opportunities for keeping himself in touch with current bacteriology. Moreover, the necessity for facilities for bacteriological examinations and for serum reactions is urgently obvious in respect of acute diseases such as diphtheria and enteric fever, and hence there is need for numerous well-equipped and conveniently situated laboratories in which such examinations can be made.

Fortunately provisions of this nature are being rapidly made and appreciated throughout the country, and although I cannot pass in review anything that is being done I may perhaps in regard to the provinces make mention of the admirable work that is being carried out at the Thompson-Yates Laboratory at Liverpool, at Owens College, Manchester, and at Birmingham, Bristol, Cardiff, and other places. I may also, while of course recognising the work that is being done by many of our large towns, refer to the progress which is being made in this direction by certain of our county councils by those, that is to say, who have appointed medical officers of health. In certain counties there is now a complete organisation by which every medical man in the county may without trouble or expense procure bacteriological examination or serum reaction. But as regards this question of bacteriological examination I would point out that it is in no sense scientific preventive medicine to wait until tubercle bacilli can be detected in the sputum; by that time the disease may have obtained a very considerable foothold on the patient. The essence of preventive medicine as early as possible is to secure the patient more particularly with regard to pulmonary tuberculosis. This can only be done by educating the public in the enormous importance of seeking medical assistance on the first indication of illness, or better still, by encouraging a condition of affairs by which they shall submit themselves to a periodical and thorough physical examination at the hands of their general medical practitioner. As Dr. Knopf remarks, "We cannot solve the tuberculosis problem without a family practitioner." This is the preventive medicine of the future. In the meantime we must look to our sanitary authorities, our hospitals, dispensaries, and other public institutions to use their influence in this direction. Insurance and friendly societies might also do much good work in this particular, and I am interested to see in the last annual report of the National Association for the Prevention of Consumption that arrangements have been made to furnish certain of these bodies with the necessary popular literature.

But in this matter of what is called the education of the people may I utter a note of warning? It is better to be ignorant than to possess fiction in place of fact, and it cannot, I think, be denied that in connexion with this subject of tuberculosis there is much fiction of a very dangerous nature and such that is likely to harass very materially sanitary administration generally. Since my last lecture Dr. E. C. Seaton has been good enough to bring to my notice an admirable example of a medical lecturer straining rather after effect than accuracy. The lecturer is reported to have stated "that every case of consumption was as much a case of infection as small-pox and scarlet fever. If that were the case and they were able to put their finger upon small-pox and stop it, they ought also to be able to put their finger upon consumption and stop it." The same lecturer added that consumption killed 140,000 people annually in England and Wales. The Registrar-General's annual report for 1900 gives the deaths from pulmonary tuberculosis for that year at *42,987!*

The education and examination of school children.—Of all the means which I have as yet discussed none seem to me to touch in importance that to be attached to the teaching of the laws of health in the private and public schools of this country. I find difficulty in understanding the position of those whose view it is that anything that is being done to-day or to-morrow will result forthwith, or even in the immediate future, in the "stamping out" of tuberculosis. There is no parallel for such an expectation in the history of epidemiology, certainly when the extensive presence of tuberculosis as revealed by post-mortem examinations is held in view.

A very large amount of good may, it seems to me, be done by the education in elementary hygiene and by the periodical and thorough examination of the children in our public schools. I would have the children taught the vast importance, in relation to the tuberculosis problem and to health generally, of fresh air, abundant light, plenty of cubic space per person, and cleanliness; the older children might be shown models of good and bad houses and taught the manner in which houses, huddled together on a limited space, obstruct air and light. I would, moreover, have the children periodically examined, not only as regards the condition of their lungs, but as to their general physical progress and the state of their special senses. Well-regulated physical exercises performed in moderation would also be of value. In this way we should, in my view, be doing a work which would produce results long before the children themselves became householders. Not only would measures such as these tend to prevent and to cure all tuberculous diseases, but they would also have an effect on all other diseases dependent upon diminished resistance, dirt, overcrowding, and absence of light; they would reduce, too, physical infirmities and defects of the special senses.

The Minister of Public Instruction in France, after seeing the report of a commission which he had appointed to examine into the question of tuberculosis in schools, formulated certain regulations which comprised among other things the following. 1. All schools are to be so constructed as to secure abundant light and air and the walls and floors are to be composed of impervious and easily washable material. 2. Each pupil in a boarding-school is to be provided with a card setting forth his or her weight and chest measurements and a revision of such data is to take place every three months.

I am glad to find that Sir James Crichton Browne is bringing the weight of his authority and eloquence to bear in this direction. In a recent presidential address, delivered before the medical section of the International Congress for the Welfare and Protection of Children, he stated that "under-weight is at all early ages common and the most frequent sign of insufficient feeding, malnutrition, and incipient tuberculosis, and I do not doubt that the periodical measurement of children would very often, by disclosing a check in growth or a marked deviation from the normal proportion between height and weight, lead to the detection of the disease still undeclared by any outward symptom and therefore in that stage most amenable to treatment."

I have some hope that the near future may see an advance in this matter of the examination of school children. The county councils which have recently been intrusted with the administration of the Education Acts have here an admirable opportunity of showing initiative and if they properly appreciate their opportunities they will begin with the periodical, say fortnightly, examination of the children under their care. In this connexion I am glad to note that the recent report of the Royal Commission on Physical

Training (Scotland) has recommended *inter alia* a medical inspection such as is here suggested.

Fortunately, the transmission of tuberculosis by direct inheritance is so rare that the circumstances need not enter into practical politics. But children are born tuberculisable though not tuberculous and we are interested in preventing, so far as possible, the hereditary proclivity towards the disease. In endeavouring to do this we need not take quite such a broad evolutionary view of preventive medicine as was taken by Oliver Wendell Holmes when he said: "There are people who think that everything may be done if the doer, be he educator or physician, be only called in season. No doubt; but in season would often be a hundred or two years before the child was born and people never send so early as that."

The control of expectoration.—The importance of the proper control of sputum in limiting the spread not only of tuberculosis but of all other diseases in which the active agent may be contained in the sputum or saliva cannot, I think, be doubted, and for this reason all those interested in the prevention of communicable diseases must welcome any step likely to control promiscuous expectoration. As a matter of actual fact, the habit is very largely a class practice and the remedy of equalising the classes in this particular should not be difficult of attainment. One has only to compare the floor of a third-class with a first-class smoking compartment to be satisfied that the habit of spitting is in no sense a physiological necessity. This matter, as also that of placing a handkerchief before the mouth during coughing or sneezing, is one of popular education and in this connexion we must look to the National Association for the Prevention of Consumption to continue its admirable efforts. But I cannot help thinking that it is both undesirable and unnecessary to accentuate *too much* the phthisical aspect of the question and I am glad to see that this is apparently the view taken by the Home Office in approving by-laws directed towards the control of the spitting habit.

It seems to me that the most useful attitude which can be taken up is that the practices of unregulated expectoration, coughing, and sneezing are unwholesome practices calculated to spread disease and that therefore efforts should be made to control them. Let us avoid hysteria. Already much has b[illegible]n done, and in the matter of official by-laws the example [illegible] been set by the Glamorganshire county council, on the [illegible]itiative of its able medical officer of health, Dr. William [illegible]illiams, who has recently had the honour of being [illegible]ppointed by the Royal College of Physicians of London as the Milroy lecturer for 1904. This example of Glamorganshire has, I believe, already been followed by Radnorshire and a similar by-law is likely to be shortly in force in Worcestershire. The subject is also being seriously considered by other county councils. I was told recently by Dr. G. Reid (county medical officer of health of Staffordshire), by Dr. J. R. Kaye (county medical officer of health of the West Riding of Yorkshire), and by Dr. J. Wheatley (county medical officer of health of Salop) that the councils of each of these counties were contemplating action in this direction. The action quite recently taken by the London County Council will be cordially welcomed by all Londoners.

It appears to me that this is a subject of elementary cleanliness which might be promoted by every sanitary authority in the kingdom, not only as regards its value as to the control of tuberculosis, but in the interests of that general cleanliness which is likely to conduce to the prevention of several preventable diseases. The action which has been taken by numerous large towns with regard to the prohibition of spitting in tramcars and the exhibition of notices to the same effect in the carriages of the underground railways of the metropolis cannot fail to be appreciated by the public at large. The use of expectorating flasks or the employment of other means of rendering sputum innocuous by those suffering from pulmonary tuberculosis accompanied by expectoration is an obvious necessity, and the use and cleansing of flasks, &c., constitute one of the many advantages which accrue from a short stay in a sanatorium; indeed, this educational value of sanatoriums is not the least valuable of the uses to which these institutions may be put.

The disinfection and cleansing of infected dwellings.—Into the details of this matter I have no time to enter and I merely wish to insist upon the great importance in relation to the efficacy of both these measures of providing in new houses, and wherever practicable in old, impermeable and washable surfaces to the walls, floors, and ceilings in order that both disinfection and cleansing may be carried out at frequent intervals with the least possible expense and inconvenience. This is a provision which, like the control of expectoration, has [illegible] communicable diseases [illegible] ness and one which [illegible] all sanitary authorities.

Sanatoriums.—When dealing in my last lecture with the German statistics I discussed the influence which sanatoriums might be thought of as exerting in the limitation of consumption, and I need not refer at any length to the subject at the present moment. As curative agents these institutions are almost indispensable and in the matter of prevention they are likely to curtail the prevalence of the disease by aiding education and by reducing the number of advanced cases. No one who has studied the working of sanatoriums can doubt that they are of great value in a curative sense, but if only say 20 per cent. of those who leave the sanatoriums do so with their sputum free from bacilli there is still a very material margin, even supposing these 20 per cent. remained thus free until death, an expectation which is, I fear, not always realised.

Similarly, if we take the case of homes for advanced consumptives, institutions in which Professor Koch seems to have such very great faith as preventive agents, we should remember that we are only isolating cases of consumption which have been potent for harm since the tubercle bacillus first appeared in their sputum, possibly many years ago. I cannot altogether agree with Professor Koch that the cases which from their inability to carry on the battle further retire to their homes to die form the most dangerous class *quâ* infection. My own view is that the danger is greatest in the phase preceding that final withdrawal, during which time the patient is able not only to move about in his own home, but also to work, to occupy railway carriages, omnibuses, public-houses, and churches. During all this time he is, according to Flugge's school, spraying bacilli into the air in close confined spaces. He is also doing this in his home. I think, therefore, we may take it that to isolate only advanced cases, desirable as it may be as a matter of cleanliness, comfort, and humanity, is not a step which we are justified in telling the people will "stamp out" the disease. I think that Dr. Niven of Manchester is facing the problem in the only practicable spirit, when by the untiring efforts of his well-trained medical staff he searches out the cases, encourages cleanliness, practises disinfection, and advises the patient as to the best means of reducing the chances of infection. It is in the inculcation of the general principles of health, which include more air, more light, more cleanliness, and generally better housing, that we are pursuing the surest and the best tried road towards success. By all means let us have sanatoriums and homes for the dying, but do not [illegible] at if they spend their [illegible] at once and materially [illegible]

To those whose belief *it is* that the disappearance of leprosy from this and other countries was the direct result of the segregation of lepers and who hold that had no such segregation taken place the human species would have become extinct I commend a re-examination of the facts. I would also ask them to ascertain, if they are able to do so, the precise effect of isolation hospitals alone upon the prevalence of certain of the acute exanthemata. I venture to suggest that they may possibly emerge *from* their researches in a far from dogmatic frame of mind and that they may be inclined to view with less disfavour a thesis that the prevalence of unrecognised cases is capable of explaining in some degree the non-fulfilment of the prophecies of those who once proclaimed that isolation hospitals would completely "stamp out" the diseases for which they were intended. *This view in no sense leads, as some* suppose, to the conclusion that isolation of the acute exanthemata is a useless measure. On the contrary, an isolation hospital is, in my opinion, an indispensable unit of every properly equipped sanitary area, and the real value of such an institution will be the more apparent in accordance with the promptitude with which the cases of infectious disease are recognised and the use which is made of such cases in tracing out unrecognised or anomalous cases. Possibly such cases not infrequently outnumber the *recognised cases.*

Even as an isolation hospital is but a small part of the sanitary organisation of a well-ordered district, so is a sanatorium but a very small part of the whole tuberculous problem. In the matter of prevention the isolation hospital is much more important than the sanatorium owing to the far higher infective power of the acute exanthemata, for which such institutions are mainly utilised.

As regards the value of sanatoriums for pulmonary tuberculosis, one of the most experienced medical officers of health in England, Dr. Spottiswoode Cameron of Leeds, writing to me with reference to the work of the Leeds Sanatorium, states: "I regard what we are doing in the clearing of insanitary areas and the supervision we are giving to the subject of overcrowding as likely to do a great deal more for the prevention of consumption than the mere isolation of a few early cases in a sanatorium." Dr. Cameron is not, I think, alone in his views on this matter.

Difficulties seem to be experienced, especially in America, in providing sites for the erection of sanatoriums. I see in the *British Medical Journal* of July 25th that a Bill has recently been approved by means of which it is impossible for any city or "for any fraternal order, charitable society, or philanthropic individual," to establish a hospital or even a camp for consumptives except under practically prohibitive conditions. The Bill is, it appears, regarded by the *Boston Medical and Surgical Journal* as, to a large extent, putting an end "to the work of public-spirited citizens in New York State in combating and restricting the ravages of tuberculosis." All this is the result of a "mistaken idea of the dangers" of such institutions and it is against this very misconception that I am endeavouring in these lectures to protest.

And now let me very shortly draw your attention to some of the work which is being carried on in this country with regard to the provision of sanatoriums.

The action taken by county councils.—The powers which county councils now possess of providing isolation hospitals and the extent to which they are making use of such powers suggest that these bodies are better fitted than any other local authorities to provide sanatoriums. Up to recently, however, there has been some question as to whether the statutes enabled county councils to make such provision, but it has now been held by the Local Government Board that county councils can, by applying the expression "infectious disease" to consumption, solely for the purposes of isolation either provide accommodation for cases of that disease themselves or enter into an agreement with a properly constituted body for so doing. The application of the term "infectious disease" in these circumstances does not render the patient subject to disabilities under the Public Health Act. Action in this sense has already been taken by the Westmorland county council and it is likely that other countycouncils may soon take similar action. I am told by Mr. F. Vacher of the Cheshire county council that the local authorities in Cheshire are being circularised upon the subject and that if the majority are in favour of the county council providing sanatoriums action will be taken. Mr. E. Sergeant of the Lancashire county council, Dr. Reid of the Staffordshire county council, and Dr. S Barwise of the Derbyshire county council also tell me that the matter is under the consideration of their councils and Dr. Kaye of the West Riding county council has for some time had a very thorough scheme prepared. Certain other county councils have shown their sympathy with the movement by either contributing or expressing their willingness to contribute towards existing or projected schemes promoted by private enterprise. The county councils of Westmorland, Worcestershire, and Cornwall may be quoted in this connexion. I may add here that the problem with regard to the provision of sanatoriums generally has been materially simplified by the expression of opinion on the part of the Local Government Board in reply to a question from the corporation of Sheffield that sanatoriums are to be regarded as hospitals within the meaning of Section 131 of the Public Health Act, 1875

The actions of boards of guardians.—Boards of guardians in several places are now making efforts to provide separate accommodation for the tuberculous sick under their care and for the open-air treatment of such patients where this is practicable, even in the metropolis, and in large towns such as Liverpool and Sheffield great advances have been made in this direction and good results obtained.[3] But so far as I am aware the only case in which a new permanent sanatorium separate from the workhouse has been actually erected through the instrumentality of the Poor-law is that provided by the guardians of the city of Liverpool, a scheme which in its initiation and completion is largely due to the efforts of Dr. Nathan Raw who was good enough to take me recently over this institution and to explain to me the details. The three boards of guardians have combined and have obtained a provisional order which was confirmed by Parliament. They have now erected a substantial and admirably arranged building, situated at Heswall on an elevated site overlooking the Dee and the Welsh Hills and the institution was opened not long since by the Right Hon. Walter Long, M.P., President of the Local Government Board. It is a two-storeyed building providing 24 beds, 12 in each wing, the administrative department occupying the centre of the building and extending out to the rear; the cost, inclusive of the site, has been about £500 per bed. The guardians of the Bradford Union are, I believe, now making somewhat similar provision for their tuberculous paupers upon a site at Eastby near Skipton. The cost per bed will, it is believed, work out at about £220.

The proportions of this subject may be gauged by the fact that on July 7th, 1900, there were 1562 recognised cases of pulmonary tuberculosis in the infirmaries, workhouses, metropolitan asylums, and district asylums, and that during the year 1899 there were 2895 deaths in these institutions from pulmonary tuberculosis alone.

The treatment of tuberculous paupers on a large scale has recently been the subject of discussion in the metropolis and it is somewhat difficult in considering questions such as this to free oneself from the atmosphere of pity and, standing afar off, to take an impartial view of the position. Obviously we should all wish to see those who through ill-health have failed in the struggle or who are temporarily disabled put back into the ranks of the workers if even for a short time, but it seems to me that from the economical standpoint it would be wise to begin as it were at the other end of the scale and by the adoption of some such system as obtains in Germany secure treatment for the worker at the first onset of his illness. Indeed, I believe that Dr. Arthur H. Downes, the chief medical inspector for Poor-law purposes at the Local Government Board, has already expressed unofficially a somewhat similar view. It is conceivable that were elaborate provision made for the tuberculous paupers of the metropolis London might find itself in the position of having to provide accommodation for many tuberculous sick in excess of what might be termed its normal contribution—i.e., advanced tuberculous cases might seek refuge in the metropolis in order to qualify themselves for participation in its sanatoriums. From a philanthropic standpoint they would be welcome; from an economical standpoint the matter might be serious. The philanthropists and the economists appointed by the ratepayers must settle the matter. It is a social rather than a medical problem, albeit it is difficult to separate the one from the other.

Address

ON

THE DEVELOPMENT OF INSANITY IN REGARD TO CIVILISATION.

Delivered at the Annual Meeting of the British Medical Association at Swansea, July, 1903,

By ROBERT JONES, M.D., B.S., M.R.C.P. Lond., F.R.C.S. Eng.,
RESIDENT PHYSICIAN AND SUPERINTENDENT TO THE LONDON COUNTY ASYLUM, CLAYBURY.

Gentlemen,—The object of this address is to demonstrate that with the progress of civilisation mental breakdown becomes more serious and more frequent and the varieties of insanity are more chronic and less curable than in the early days of a century ago, when life was simpler and men were more content. It is a universal law that the most highly integrated functions of vital organisms are the most apt to suffer derangement.

The human mind—the most highly evolved process in relation to matter—has from the earliest times been subject to some obscuration or disintegration, but the cure and care of the insane, now so much in the "ambient air," was hardly known as a subject of serious study 100 years ago. The last century has been the most marked of any of its predecessors in regard to the material, mental, and moral progress of mankind and a short review of this progress with some lessons to be learnt from it cannot but be a matter of much interest to practical persons. Over many of us the history, the traditions, and the personal narratives of the past cannot but exercise a potent spell. We can learn from our failures as well as from our successes and these failures may possibly convey to us some notes of warning and act towards us as beacons and signals of danger. As, however, "hope springs eternal in the human breast" and our faith and aspirations are ever forward and to the future, some hopeful prophecy might be expected as to the alleviation, if not the prevention, of mental derangement; but will the lesson of our retrospect justify this anticipation?

---

[3] The Treatment of Tuberculosis in Hospitals and Infirmaries, Brit. Med. Jour., Nov. 8th, 15th, and 22nd, 1902.

The sum-total of the physical, moral, social, and religious energy which has caused our progress during the past century has been unparalleled in the history of man, but action and reaction are always equal and contrary and we shall find that our advance has not been without sacrifices—losses here and retrogression there—and that civilisation itself has not been an unmixed blessing, for in the struggle which has marked our advancement the conflict between intelligence and ignorance has resulted not solely in pure reason and limpid wisdom, but the path of progress has been freely strewn with mental wreckage and physical degeneration.

In the whole range of medical science insanity is, perhaps, of all others the most painfully interesting subject. It is the debatable land of the imagination which presents many subordinate varieties [illegible] poet, the fable of t[illegible] romancer being wov[illegible] excursions of mania [illegible] ness of unlimited po[illegible] source of mental delig[illegible] bliss much more exalted than fall to the lot of sober reason, but insanity in the self-condemnation and misery of melancholia inflicts far severer pangs upon its victims than can be produced by the most extraordinary anxiety and the most acute bodily pains. What are the consequences of insanity? It means in the first place a deprivation of liberty, perhaps a life-long maintenance upon the public purse—already heavily overburdened—a maintenance including housing, clothing, and food which tends each year to rise in cost. In addition to this useless life, or living death, a stigma probably attaches to those who are related to, and are dependent upon, the sufferer, by which they are made to feel the curtailment of the necessaries of life, increasing the liability to a similar breakdown in themselves. Surely, if the possession of reason be the proud attribute of humanity may not such a disease of the reason as insanity be ranked as the greatest affliction and is one not forced to make the study of such a disease which touches society, involves the law and defies medicine, one of deliberate and anxious thought?

What is it that characterises insanity? It is not the presence alone of delusions or hallucinations. There are many persons in daily life who fulfil all their duties and obligations to society and themselves and yet suffer from hallucinations. Insanity, although a perversion of mental functions, is not exclusively an intellectual disorder, for persons gifted with high intelligence may fail to respond to ordinary motives and become so defective in their habits as to be socially unfit to mix in the world. Again, the distribution of mental faculties may be so uneven and mental endowment may be so unbalanced that their possessors are unfit to be at large. There are many persons who are properly incarcerated in asylums, in whom there are merely exaggerations of normal tendencies, fluctuations of the mental faculties which may be described only as excessive or beyond normal limits and which render these persons unstable, untrustworthy, and even dangerous, yet in whom there is hardly, if any, loss of mind. It is only too well known that there are imperceptible gradations as well as abrupt transitions between health—which is the easy, harmonious, and unconscious performance of the organic functions—and disease. Health of mind, like health of body, is a somewhat indefinite expression.

I shall exclude from the subject of this paper senile forms of insanity, the mental decay of involution which results in more or less normal loss of mind, as also the primary defects of idiocy and imbecility which are pathological variations not entirely dependent upon individual stress and which exist in all grades of society and all states of civilisation.

So far as any trustworthy information is to be had it appears that insanity increases as man departs from the savage and semi-civilised states and approaches the highest civilisation. In primitive states of society and among uncivilised races insanity is rare, the pure psychoses are unknown, the chief forms—apart from the low grades, idiocy and imbecility—being associated with the taking of drugs and correspond to the insanities of civilisation resulting from alcohol, ether, cocaine, morphia, &c., and which in the main are curable. Insanities which end in dementia are rare and dementia itself is uncommon, and it is only when we come to higher civilisation that the higher forms of insanity are seen. Diseases, like the physical causes which produce them, have their evolution, their cycles; and their day, and I shall proceed to demonstrate that the progress of mankind has caused a more or less complete change in the type of insanity such as now comes under treatment. As to the causes of insanity, the actual and proximate exciting causes will always be stress of some kind acting upon an organism predisposed to break down, the great predisposition being determined by heredity and by the social environment of the individual, for we know that social relations and obligations constitute the preponderant factor in any mental life. As to heredity we need say no more than that an inherited instability of organisation makes itself evident in the present day more than in any previous period at the physiological crises of life, a hereditary tendency being responsible for more than one-third of all occurring insanity. The tendency of recent years to look upon insanity more as the result of bodily than mental causes is no new view. Haslam, in the early part of last century, classified the causes of insanity and insisted that the disease was never purely mental—that, on the other hand, positive bodily conditions were the causes and that insanity was structural and active in its origin. Earlier writers, however, laid great stress upon a disturbance of the emotions as a cause of insanity, sudden violent affections or the habitual indulgence of any passion whatsoever being looked upon as definite exciting causes. Those whose professions required the exercise of the imagination and the indulgence of the passion, such as the *personnel* of the drama, were said to be peculiarly liable to insanity, but probably some physical factor, such as a dissolute and irregular life, was concerned in causation. Fright, anger, religious terror, grief, ungratified desire, and disappointed pride were specially referred to by those earlier writers as definite causes of insanity. It was pointed out by Pinel that 30 per cent. of all his cases were due to domestic bereavement, 26 per cent. to the events of the Revolution, and 22 per cent. to fanaticism and disappointment in love. It is also an interesting record by Charles Booth[1] that the anxieties and uncertainties of professional life are responsible for the largest proportion of insanity which this class of all others shows He also points out that loss of trade affecting bodily health is responsible for causing insanity, and that provided wages are regular, although low and there is no nervous strain, there is little tendency to insanity.

As to civilisation, this means progress and it implies a development from the simple to the more complex. When the conditions of life become more specialised the nervous system of man has to react to more stimuli; not only are these more numerous but they are more complicated. For each stage of civilised life a special standard is fixed; the more perfect and the higher the standard the more culture and knowledge are attained and better results obtain in consequence. Highly civilised man thus lives in a more complicated environment, which calls for the higher forms of self-control and more prolonged and varied efforts than are customarily aroused by the simple emotions and the elementary sensorial stimuli of a primitive life. In these efforts numbers of unfortunate ones will not succeed, they are incapable of elevation to this higher plane of civilisation owing to mental, physical, and moral deficiencies. Not having the qualities essential to success they are left behind, evolution proceeding at the expense of the less fit—those, in fact, whom civilisation itself in the struggle renders unfit for the standard it has itself fixed. It is thus seen that civilised society, in forcing the pace, practically manufactures its own unfit—viz., its own paupers, its own lunatics, and its own criminals. London alone in this respect is responsible for the production of over 70 insane persons per week and this number is destined unrelentingly to increase. The only neutralising agency is the fact that sterilisation follows in the wake of three or four generations of town-bred people—a natural law which insures that the unfit shall cease to cumber the earth. Not that civilised life, properly developed, tends in itself to cause insanity, but by implying a more complex mental structure with more delicate parts and nicer construction, this mental machine is more liable to faults of mechanism and varieties of derangement than is the case with the simpler and more vacant minds of primitive people. In cities where the population has to accommodate itself to the pressure of competition the tension of mind is more continuous. There is an increased inhibition from pent-up mental energies which in a primitive life find a ready exit through muscular actions. In cities also artificial desires multiply, unhealthy activities are created, and ambition further forces the overworked brain, which, sooner or later, results probably in its complete breakdown. The wants of modern civilised life are many and are rarely gratified, the eager hand reaches to grasp the prize which is plucked away by some other of the numerous competitors, and bitter disappointment is added to the nervous strain and mental overwork. It is doubtful, however, if mental labour alone is ever an actual cause of insanity, for habitual application of the mind, when not excessive, strengthens it and renders it less liable to disease. Dr. F. W. Mott has shown that the best and most exact nervous reaction takes place when the nerve circle is complete and in a state of healthy tonus or strain. There is no doubt that fatigue is unfavourable to good mental work and by experience we know that fatigue is caused by intense thought. Böerhaave said that unremitting mental attention to a single subject for a whole day once kept him for six weeks without sleep. Bodily fatigue we also know to be demonstrably injurious to thought, for Kraepelin has shown that muscular exhaustion weakens brain power in definite curves and ratios. It is not overwork, however, so much as worry and anxiety which cause insanity. Civilisation, as we all know, brings in its train different effects to different groups of people. To the idle rich it brings sensuous luxuries of all kinds which account for the insanity of those in easy circumstances who are prone to much self-indulgence, who pay over-much attention to personal longings and sensations, and who have too little occupation or whose occupation is irrational and unhealthy. To the poor—the stratum in society which is most prone to insanity—who are at the mercy of every economic fluctuation, it brings lack of proper nutrition, overcrowding with unsuitable hygienic and moral surroundings, and all the other evils and abominations caused by the massing of people in large cities, such as alcoholic and other indulgencies, poverty, and crime, the latter an evil worse than poverty and which bears a very intimate relation to insanity—the instinctive criminal and the morally insane being considered to be identical individuals, characterised by the same psychical and physical stigmata of degeneration. As to overcrowding an immense number of poor people live in small and badly ventilated apartments with filth and squalor in their mean streets and dwellings. Their food is often deficient in quality and quantity, which predisposes them to physical and mental disease. How can vegetables, fish, and milk be fresh and digestible by the time these reach the poor of London where even the cooking for this class is stated on good authority to be worse than in the country. Surely the plainest food with health under a hedgerow must be better than such semi-starvation with the glamour of the city. Overcrowding leads to many and various miseries and personal discomforts which are humiliating and demoralising to the grown up and are a source of moral contamination to their descendents in whom they cause mental and bodily degeneration. All the year round these dwellers of the city are at a disadvantage compared to the country folk. In winter they suffer from cold, want of food and clothing, and in summer they endure a debilitating atmosphere from the reeking odours of dirt, decomposing garbage, and noisome refuse. The disposal of refuse, the sterilisation of milk, the detection of adulterations, and the provision of pure water are great problems which big cities have ever before them. London, probably the healthiest of these, breeds her legions of anæmic, hydrocephalic, and unhealthy children from the want of pure air and radiant light. Crowds of people have their happiness stifled by their environment in our great cities, with the result that they seek to drown their misery and depression in the effects of alcohol. This sedative taken to lull and to veil the little worries, the small pains, and the general mental disturbance of whole classes is the cause of at least a fifth of all insanity occurring in males and more than half this proportion in women—the proportions are probably much higher—and call loudly for definite action and treatment. Such indulgence leads to other sensuous excesses which are all deleterious to nervous centres. There is no doubt that London and, *a fortiori*, other towns produce in the present day a tension of the nervous system as baneful as it is unnatural. One has only to look at the living maelstrom which pours into airless and sunless London offices, workshops, and factories every day from the suburbs to see the strained, eager, earnest, and inwardly preoccupied people who are compelled to sacrifice their health and overstrung nerves in the cause of "civilisation."

---

[1] Life and Labour of the People.

Let us briefly contrast the state of civilisation a century ago with what it is to-day and see for ourselves the reason why the stream of progress has been strewn with physical and mental wreckage. Beginning with education the great mass of the people was entirely without it. At Queen Victoria's accession 44 per cent. of the community were unable to read and to write or even to sign their names. Now this proportion is less than 6 per cent. Another great change within the past century has been the migration of the population from rural districts into towns, which has been caused in the main by our present system of education.

In the first year of the reign of Queen Victoria sufficient wheat was grown in the land to feed the people for 11 months in each year, now there is only enough grown to provide the population for two and a half months. Furthermore, the cultivation of the potato—a measure of industrial as well as of arable progress—is declining in this country, where it is only 38 acres per 10,000 persons, as against 161 in Germany and 98 in France. In the year 1800 more persons lived in the country than in the towns, in 1841 the urban total was one half of the whole population, and in 1891 the urban constituted 77 per cent. of the whole population. Such a system of education which drives each year 80,000 persons from the country into the towns and, as Mr. Rider Haggard states, leaves the land without labourers and ploughmen, and which yet causes millions a year to be paid away to the little culturists of the continent for fruit and eggs and over half a million for onions alone, which can so well be grown in this country, is evidently unsuited for rural districts. Not until each local authority can determine what should be taught in each district, as foreshadowed in the new Bill, can any improvement take place. The present system of education is too rigid and the hard-and-fast curriculum of cramming should give way to a minimum of bookwork and a maximum of outdoor instruction so as to train the eye to observe and the hand to work. Shelley's diatribes against the selfish oppression of the people by the landowners and others were doubtless fully justified, but it is a question whether the political franchise has not extended power into the hands of masses of people who are incompetent to grasp issues involving great risks. What is now the condition of the villages, the looms of which were once in active work and where the handicraftsman once throve in patient contentment, feeling joy and pleasure at the performance of work done as well as it could be done? These handicraftsmen have now left for the towns, where they work in small, hot, and ill-ventilated shops and are at the mercy of every trade fluctuation, the curse of drink following on the heels of their uncertain occupations.

Perhaps in no department of human activity has progress been more marked than in that of communication. In the early part of the last century it cost 1*s.* 4*d.* to send a letter 60 miles, and in 1837, when the penny post was established, four letters were sent by each person annually, whereas now 100 letters and two telegrams are sent and a staff of 160,000 is employed exclusively in this department. In 1830 the only railway was from Liverpool to Manchester and at the late Queen's accession in 1837 there were only 110 miles of railway which were opened in spite of prolonged and strenuous opposition. Although steam was used on the Hudson in 1807 it was not until the second year of the reign of Queen Victoria that it was used to cross the Atlantic. A century ago there were no telephones or telegrams, no steam, and no electricity. Means of communication were rude and costly and only the well-to-do could travel, roads were bad, and tolls and turnpikes were frequent. The stage coach was the only conveyance for the many, but life in the open air tended to chivalry and to courtesy. Our ancestors read less than we do, but their reading was of a more solid and enduring character than is ours.

The scarcity of books and the comparative rarity of journals induced readers to master what they read, with the result that they absorbed real nourishing intellectual food. A superficial attention to an ill-digested course of reading dulls and benumbs the intellect. I have had not one but several youths whose insanity was distinctly traceable to the injurious tone of the literature which they indulged in. It is also stated, by those best qualified to give an opinion, that this steeping of our youth in the prurient, exciting, and unreal literature of to-day—a literature that crowns even vice and crime with an illusory halo of glory—has been the principal cause of neglected domestic duties, unhappy homes, and a large percentage of crime, as is frequently testified in the summing-up of our magistrates.

The emancipation of women from unfair and unjust disabilities and the larger measure of education and freedom granted to women have especially marked the last century; but it is a serious assertion that they look with complacency upon the conjunction of an increased marriage-rate and a diminishing birth-rate. It is believed that the idle women of the upper classes (who are more self-indulgent than ever before) regard the immorality of the average man with less aversion and that they bewail the injustice of visiting condign social ostracism and punishment upon women for similar delinquencies. Further, the revolt against domestic service among the lower classes is also to a great measure a reflection of the love of pleasure in high places.

I do not deny that vast improvements have taken place in the social condition of the people in the past century. But what have been the physical and psychical effects of progress upon the nation? In spite of the progress in sanitation—the science of preventive medicine—which concerns the great tripod of life—food, air, and water—and which now forms one of the most important departments of medical education—a science which in the late reign has caused £150,000,000 to be spent in providing pure water alone, which has directed special attention to temperance, to the reduction of mortality (the rate of which has declined from 1 to 23 in 1685 to 1 to 40 in the middle of the century, and at the present day to 1 to 55), and especially to infant mortality, calculated by the proportion of deaths under one year of age to 1000 births, which, according to the Registrar-General's information, was yet higher in 1902 than 1881, and to the protection of adult and child life by special statutes, yet I say that in spite of all these facts the physique of the nation has deteriorated, the deaths from cancer and nervous diseases have absolutely increased, as may be seen from Table I.

TABLE I.—*Showing the Annual Death-rate per 1,000,000 Persons.*

	1861-65.	1886-90.
Cancer	367·8	599·7
Nervous diseases	1546·0	1785·3

Furthermore, out of 1000 consecutive male cases admitted into Claybury Asylum 143 were between the ages of 15 and 25 years inclusive, and these are typical of their class. Table II. gives the actual physique of these 143 persons in weight and height at the respective age period, compared with the averages in the general population at the same ages.

TABLE II.—*Giving the Physique of 143 Persons admitted into Claybury Asylum in Weight and Height at different Age Periods, compared with the Average General Population at the same Ages.*

Number of patients.	A [illegible]	[illegible]	Healthy [illegible] age.	Average weight of patients.	Healthy standard of weight according to age.
		Inches.	Inches.	Pounds.	Pounds.
1	15	56	61	64	103
6	16	61	63	109	117
4	17	64	65¼	117	130
12	18	65	65¼	120	142
16	19	64	65½	122	139
13	20	65	65¾	123	138
22	21	66	66	130	145
17	22	64	66¼	130	141
16	23	66	66¼	128	145
20	24	66	66¼	132	145
16	25	64	66¼	127	144

Does not the above point to a physical degeneration in certain strata among a large number of the population for which some cause should be found? I know it is asserted that the growth of the upper classes has increased, but where is the proof of this? Talbot and Kingsley have recently called special attention to the contracted jaws and the poor teeth of town-bred persons, and the attention recently called by the Royal Commissioners on Teaching in Scotland, by the report of the Inspector-General of Recruiting who states that one out of every three persons brought up by the recruiting sergeant is rejected, by the special report of the Director-General of the Army Medical Department, by Sir Lauder Brunton and many others, deserves most careful inquiry and investigation. It is stated that there are at the present day more feeble-minded among the children of the metropolis in proportion to the population than ever existed before, and it is computed that there is one such for every 180 healthy children who requires special educational care and training. Not only is there thus a lowering of physique among town-bred people, but their mental condition is also affected and some remedies should be pointed out towards the more efficient progress of our present system of civilisation.

The cult of athleticism which has become the absorbing passion of Englishmen, old and young, must be looked upon as, on the whole, a corrective of neurotic heredity, but it is not certain whether excessive exercise does not lead to overstrain of the circulatory system for which future generations may have to pay heavy penalties. Already cardiac diseases unknown in the early years of the last century are calling for special methods and institutions for their treatment and cure. The seriousness of high arterial tension is being discussed on all sides and tonics in the form of phosphorus, arsenic, and strychnia are much more common, as also are cardiac sedatives. In Germany much attention is paid to suitable open-air play places exclusively for children and teachers are appointed to play with them. There is no doubt that physical culture is one of the greatest needs for our young people of to-day. I can speak in high praise of Swedish drill as a successful addition to the treatment of the insane. Its use has been very beneficial in the experience of my colleagues and myself at Claybury. It is a system which connects mental and muscular processes, engages the attention, and insures a more precise and ready reaction to outward stimuli.

What have been the psychical effects of "civilisation"? As regards education the present system has doubtless raised the general intelligence of the community, but it has destroyed individuality, it does not train the eye to see, the hand to work, or the imagination to create. Few men of the first rank now rise from the masses. It is also said by those who know that respect for personal qualities has disappeared and has given place to respect for the longest purse. This adoration of the millionaire demonstrates the craving for luxury and the means to obtain pleasure and it permeates every rank of society. Men now think they have a right to gratify every passion irrespectively of the misery this may involve to those dependent upon them. The question is whether the pendulum has not swung dangerously far in the direction of toleration and whether liberty has not degenerated into licence. Already there are not wanting signs that legislation is being called for to deal with prodigals, spendthrifts, and persons guilty of gross self-indulgence. There is no doubt that to day altruism has lessened and individual selfishness has greatly increased. Our hospitals languish for lack of funds, charity has never been doled with less liberality, and our great universities—the pride of our country in the Middle Ages—make futile appeals for support. Benevolence, as in past centuries, does not in our day found great institutions for charity, education, and religious devotion. Further, the judicial statistics (1903) show that certain kinds of law-breaking are on the increase, there are more divorces than ever among the upper classes, and the petitions for dissolution of marriages in 1901—the last year reported upon—were higher than in any previous year. Orders made by the Summary Court for judicial separation have increased by 31 per cent. It is only too apparent that there is less general heed paid to marital constancy and the laxity of morals among the "smart set" of women cannot but exercise a baneful influence upon the future morals of this country. Commercial morality has declined, for crimes of embezzlement and betrayal of trust on the part of trustees, managers, secretaries, clerks, and the like, have shown a decided tendency to increase. There is a dearth of sincerity and of men who "run dead straight."

As to the sharp differentiation and subdivisions of workmen into groups, pointed out by Charles Booth, is it now certain that these groups do not hurry to get through their tasks so as to "enjoy themselves" in some banal and senseless amusement and that their work is performed indifferently and without pleasure in contrast to the individual attention from the workmen of former days, who, as stated, showed their joy in work well done? It must not be asserted that when wages are high the people are contented. The reverse is often the case and it would be true to say that there has never been an age more discontented than the present. Socialism, that feeling of the body politic in the aggregate which levels down rather than up and which provides for the many at the expense of the few, tends to the extinction of individual enterprise of every kind. It tolerates, if it does not sanction and encourage, the present state of nearly one-fourth of the wage-earning population who are reported to exist at rates of wages just above starvation and who never rise with, or participate in, the country's prosperity. This socialism is favoured, if not determined, by the fact that the preponderating vote of the elective body decides the policy of the elected body. Under this system, among other developments, a vast amount of municipal indebtedness has been incurred and so serious is this that the president of the Incorporated Association of Municipal and County Engineers (Mr. Weaver) recently called attention to the increase of 216 per cent. in local indebtedness which has taken place during the last quarter of a century and which, to prevent municipal bankruptcy, can only result in the nationalisation of municipal loans. The spirit of chivalry and courtesy already referred to has certainly all but disappeared. The difficulties of travelling in past days made women much more dependent upon men than they are to-day, for travellers in their hurry and scurry to "catch the tube" have no time for courtesies and no occasion for gallantry. On the other hand, women being more free are more addicted to pleasure than they ever were before and they find this in the excitement of gambling, for they have become more the companions of men in sports and pastimes. It is also certain that the women of to-day drink more alcohol than formerly and to a great extent secretly. As to the general question of alcohol, the subject will be dealt with fully in the debates of the section and I shall not further allude to it here.

From what has already been said—and we are much indebted to Mr. James Stanley Little for his records[2]—it is seen that high pressure and a subdivision of labour have evolved a very complicated mental mechanism with every possible liability, therefore, of getting out of order, which has resulted in the appearance of a large variety of mental diseases unknown to the older physicians. We shall see the import of this in our comparison of the diseases of to-day with those of 100 years ago.

It is interesting to note that the first serious legal enactments in our country respecting the care of the insane do not date back farther than the second or third year of the reign of William IV. By the courtesy of the Commissioners in Lunacy I am informed that some statistics date as far back as the reign of Edward II. Possibly the mental infirmity of King George III. gave an impetus to the more enlightened modern treatment of mental diseases which, until about this period, was not only a reproach but also highly reprehensible. Before this reign we have no noteworthy records of asylums other than Bethlem. St. Luke's Hospital had been opened less than ten years, but from 1762 to 1822 we have valuable contributions in regard to mental diseases from Cox of Fishponds,[3] Arnold of Leicester,[4] and Haslam of Bethlem Hospital[5]—an institution in which the skilful and kindly treatment of mental diseases was then, as now, an honour to our land. About the year 1793 we have the work of that great champion of the rights of the insane—viz., Pinel of the Bicêtre translated into English by Davis[6] of Sheffield, a philosopher, a scholar, and a physician. Haslam was the first to describe general paralysis of the insane, a disease which is probably the most highly evolved form of mental breakdown, and at the opposite pole to the primary defects of idiocy and imbecility. General paralysis was then rare, but is now so common that Dr. T. S. Clouston, in his last report of Morningside Asylum, considers it to be in the proportion of 21·7 per cent. for male admissions and 6·7 for female admissions as against 17·3 males and 3·3 females for the whole of the London County asylums. Whether the disuse of mercury as a general therapeutic remedy in our day compared to the frequent salivation for the smallest ailments in the past may have anything to do with this increased prevalence is uncertain and too speculative to be considered here.

There is reason to think that syphilis is more common now than it was a century ago (although the opinion of Sir Alfred Cooper dissents from this view) and it is possible that its dire effects upon the nervous system might be controlled, or modified if not altogether avoided, if these were more generally known or if information respecting the far-reaching effects of syphilis and the nature of the disease were more widely disseminated. The ravages in India among our troops have given rise to loud cries for special protective legislation against contagious diseases of a luetic character and only last year a unanimous resolution was conveyed from the section of Psychological Medicine of this association urging the attention of the Government and public bodies to the horrible results of this disease, but our statesmen are timid about the health of the people when fanatics, faddists, conscientious objectors, and other irresponsible agitators begin to make political capital out of the "moral" question. It is not too much to say that the more highly developed a race becomes the more cases of general paralysis and other forms of insanity due to the same cause will occur, and it is not too much to infer that the diseases named are preventible and should be prevented. Haslam refers, before the year 1800, to the disease described as dementia præcox, then so rare but now so common that it may almost be described as the scourge of our asylums, for it attacks prematurely our most promising youth, it is practically incurable, and helps to fill our asylums of the future with the hopelessly insane. It is of all forms the one caused by overstrain and the mental rather than the manual worker is subject to its ravages; also, as stated, the great majority never recover from it. This is Haslam's description of it in 1800: "A species of insanity sometimes occurring about the time of puberty, especially in those who have possessed a good capacity and a lively disposition and in females more frequently than males, their faculties are gradually obliterated until they are at last complete and incurable idiots." That which was then occasional may now be described as having become a common variety of insanity among our promising and educated youth.

Haslam reported prior to 1806 upon the treatment of 8874 cases of insanity (4042 males and 4832 females) in the second Bethlem Hospital, built in Moorfields in 1676, and the result of 46 years' experience. The maniacal form of insanity was then more common. Those were the days when men were content and the nation had faith in its destiny. In the *Times* of July 11th, 1803, was published a war song in which, after inviting the consul-king to attack us, it proceeds:—

> " . . . . that Britons
> Can fearless still maintain their stand,
> And single-handed crush the pride of France."

All classes then bore the necessary hardship of high taxation with resignation and without discontent.

As to the recovery-rate, Haslam states that his own among cases of mania was 67 per cent. Last year in all the asylums of London the recovery-rate from all cases of mania amounted to 38 4 per cent. There were few insane in those days but those which occurred were acute and curable. Not until Jan. 1st, 1859, was the number of lunatics officially registered in this country. At that date there were 36,762 insane persons, a proportion to the population of 1 to 536. To-day they number over 113,964, a proportion to the population of 1 to every 293, and the tendency of much of the insanity which comes under treatment to day is to end in dementia and to become incurable. Even a quarter of a century ago the type of insanity was different from that of to-day. There is an increased tendency to melancholia which is less recoverable than mania, being probably a deeper reduction of nerve elements than occurs in mania. Melancholia has shown a considerable rise among the educated and private class of the insane, and I am stating a fact and not an opinion when I say that recovery may be complete after a sharp attack of mania, whereas this is rarely the case after melancholia, more especially in men. This supports the opinion of the earlier physicians that "furious insanity is much more curable than melancholy madness," both Haslam and Pinel having recorded this observation.

---

[2] Progress of the British Empire in the Nineteenth Century.

[3] Cox: Practical Observations on Insanity, second edition, 8vo, London, 1806.

[4] Arnold: On the Management of the Insane, 8vo., London, 1809.

[5] Observations on Madness and Melancholy, by John Haslam of Pembroke Hall, Cambridge, Apothecary to Bethlem Hospital, 8vo, London, 1809.

[6] Pinel's Treatise on Insanity, translated by Dr. Davis, 8vo, Sheffield, 1806.

Of all the 9267 patients (4096 males and 5171 females) who have been under treatment in the Claybury Asylum since its opening—a period of ten years—and of whom I have direct personal experience and record, 1132 males and 1625 females recovered, a percentage of 27 males and 31 females. Of the 8874 at Bethlem Hospital (4042 males and 4832 females) referred to above and under treatment over 100 years ago 1155 men and 1402 women recovered, a proportion of 27 per cent. for the men and 29 per cent. for the women, an improvement in the recovery rate of to-day of just over 1 per cent., in spite of all the means of treatment which a century's progress in applied art and the sciences has placed at our disposal. Surely there must be some other explanation than the failure of modern therapeutic means. May not this be discovered in the changed type already referred to and incident to our civilisation?

*If a comparison is made between the reports of the Com*missioners in Lunacy for the years 1878 and 1902—a period of 25 years—which, as stated, is within my experience, a reduction is seen in the percentages of all cases of acute insanity recorded, a decrease from 75·3 to 70·9 per cent., and further, as cases of *dementia præcox* or premature dementia in young persons—already referred to—were not recorded in the statistics of 1878 and they almost invariably commence in depression, it is justifiable to conclude that they were classed as melancholia, which has risen from 21·5 per cent. in 1878 to 27·9 per cent. in 1902, the reduction in cases of mania in these years being from 53·8 per cent. to 43 per cent. The age periods in the statistics of these Blue-book reports are not given but the calculations ascertained are absolutely confirmatory of the statements which I have made. As to the recovery rate the Blue-book for 1878 gives it for males as 34·81 per cent. and for females as 42·84 per cent., an average total of 38·84 per cent., whereas for the year 1902 the recovery rate is given as 34·4 per cent. for males and 39·7 per cent. for females, an average total of 37·1 per cent., an actual decrease in the recovery rate for the first and last of the 25 years under review.

With the progress of civilisation, therefore, not only is insanity on the increase but the occurring varieties are less curable; the physique of the town-dwelling section of the population has deteriorated both in height and weight, and the statistics of recovery are less favourable to-day than they were 25 years ago. Serious as this may appear, while such a state exists one can neither hope for nor expect relief from the great financial and economic burden of providing accommodation for the insane in the future. If relief is to come it will be in some great change affecting the physical as well as the mental health of the masses of the people—a foreshadowing of which is beyond the scope of this paper.

There is yet one factor in the psychical condition of the people which affords opportunities for high ideals, which kindles a spirit of sympathy, devotion, and fervour even among the roughest characters and in the most crowded areas of our cities—I refer to the effect of spiritual influence. In an assembly such as ours I touch upon it with extreme diffidence, but it is an element in human character for which even the Prime Minister has recently appealed, and the life of Father Dolling, the work of such institutions as the Salvation and the Church Armies testify to its influence over the mental and moral character of those hopeless persons who become the deposit of our civilisation. The indifference of the great bulk of the people to this aspect of life is a matter of common knowledge and an interesting contrast has been recently furnished in the July number of the *Edinburgh Review*. At the present time there are in London alone over 700,000 young men between the ages of 16 and 21 years—and mostly sons of working men—who need special guidance and training. It is not improbable that "hooliganism" and other forms of social outbursts might be much modified through an influence from this direction. Everything points to the *strong and immediate necessity for preventing the extension* of this lowered mental and physical vigour. Our zeal, energy, and skill should be directed to assist a more healthy adjustment of the mind of man to his ever-varying and progressively complicated environment.

PERNICIOUS ANÆMIA FOLLOWING PARTURITION.

BY WILLIAM ELDER, M.D., F.R.C.P. EDIN.,
PHYSICIAN TO LEITH HOSPITAL,
AND
EDWIN MATTHEW, M.A., M.B., M.R.C.P. EDIN.,
ASSISTANT PHYSICIAN TO LEITH HOSPITAL.

DURING the early months of 1902 there were under observation in the wards of Leith Hospital a number of cases of anæmia following labour. In all but two the anæmia was simple in type and the condition was relieved by the administration of iron over a period of three or four weeks. Two of the cases, however, terminated fatally and *from the general symptoms, the condition of the blood*, and the result of a post-mortem examination of one of them the conclusion was arrived at that in these two we had to *deal with an anæmia of the progressive pernicious type*. Both cases occurred in comparatively young women, aged respectively 29 and 31 years, and in both the condition either immediately followed labour or was very much aggravated by it so that a fatal termination occurred within a short time.

CASE 1.—The patient, a married woman, aged 29 years, was admitted to Leith Hospital in March, 1902, under the care of Dr. Elder. She complained of general weakness and had been ill for four weeks. Her family history was good. She lived in a comfortable home and had been married four years and had had three children. The labours were easy and in none of them had there been post-partum hæmorrhage. During her last pregnancy she had not felt in her usual health but was able to be about and to do her housework. For 14 days before labour she had been troubled with vomiting. The labour, which took place four weeks before admission, was normal. The sickness stopped after it and for ten days she felt quite well. On the eleventh day she had one or two shivering fits. These recurred daily for about ten days. The right breast suppurated, discharged for a few days, and then healed up. Ten days after labour she herself noticed that she was becoming yellowish in the skin and pale. *General weakness set in and the pallor increased.* She came for advice to the out-patient department and was admitted to the ward on March 15th.

On admission the patient was very weak and unable to stand on her feet for more than a few minutes at a time. She was very pale and not well nourished, but said she had always been thin and wiry. The lips were almost colourless. The teeth were very bad and the tongue was pale and dry. The appetite was poor but previously to the present illness the patient said that she had had no stomach troubles. She had been habitually constipated. On examination of the abdomen there was no tenderness. The stomach was not enlarged and the liver dulness was normal. The apex beat was faint and the pulsation was diffuse. The usual hæmic murmur was present at the base with a *bruit de diable* in the neck. The pulse was 120, regular, and of low tension. The urine was highly coloured and scanty. There were no abnormal constituents. The respiratory and nervous systems were healthy and the reproductive system was as stated above.

A drop of blood was obtained with difficulty from the ear and the thumb. It was very serous and on cover-glass films it looked almost colourless. The analysis of the blood gave *the following result: hæmoglobin, 20 per cent.; red blood corpuscles, 1,100,000 per cubic millimetre; and white blood* corpuscles, 6000 per cubic millimetre. Film preparations stained with the triacid mixture had the following characteristics. The red cells showed great differences in size and over 30 per cent. of them were megalocytes. Most of the megalocytes had increased hæmoglobin content and were opaque. Poikilocytosis was present chiefly in the form of oval and pear-shaped cells but was not so marked as the degree of anæmia would have led one to expect. Nucleated red cells were fairly numerous, the majority being megaloblasts. *Over 60 were counted in three very thin films.* Three or four of the megaloblasts in each field were giant cells. Mitotic division was seen in one nucleus. In most of the megaloblasts the protoplasm stained a dark brown with the triacid mixture. A few myelocytes of large size were seen in each field. The last examination before death showed an increased number of megaloblasts and a marked ante-mortem leucocytosis.

The patient lived for only seven days after admission to the hospital. She gradually became paler and very weak. The temperature rose on the second day after admission and remained at about 102° F. till death. For two or three days before death the patient complained of pain in the abdomen and had some sickness and diarrhœa. No post-mortem examination was made.

CASE 2.—The patient, a married woman, aged 31 years, was admitted to Leith Hospital on Feb. 11th, 1902. She complained of general weakness of nine weeks' duration. Her family history was good and she had a comfortable home. She had enjoyed good health up to three years previously. Almost immediately after marriage she had an attack of influenza from which she made a slow recovery. Two years and three months before admission her first child was born. Labour was prolonged, lasting for four days. The forceps was used, the perineum was torn, and there was considerable post-partum hæmorrhage. She was very ill for 14 days and then improved slowly, but was an invalid for quite three months. She nursed her child all the time and continued to do so for 13 months. Her second child was born nine weeks before admission. She was quite well all through the pregnancy. Her labour was instrumental and there was no post-partum hæmorrhage. She was in bed for ten days but though she got up after this she was never again able to work. During the first week of the puerperium she suffered from ulceration of the tongue and throat. About 14 days after the birth of the child she noticed that she was becoming very pale. About this time also she was troubled with vomiting and diarrhœa which under treatment were relieved. As the weakness was increasing she came into Leith Hospital.

On admission her lips were very pale and her teeth were very bad, especially the upper set, consisting as they did of a row of decayed roots, not one sound tooth being present. The appetite was good. She had no history of stomach troubles. Constipation had been habitual. She had suffered from palpitation and breathlessness since the child was born. The apex beat was weak and pulsation was diffused. A hæmic murmur was present at the base. The pulse was 112 per minute, irregular in time and force, and of low tension. There were signs of consolidation at the right apex. The urinary and reproductive systems were healthy. There were no enlarged glands and the spleen was not enlarged. The blood was very thin and pale and a count gave the following result: hæmoglobin, 20 per cent.; red blood corpuscles, 550,000 per cubic millimetre; and white blood corpuscles, 5000 per cubic millimetre. Films were stained with Ehrlich's triacid mixture. Marked differences in size were observed and a large number of megalocytes were present, the majority of them being stained polychromatophilically. Most of the cells were misshapen, oval cells predominating. Erythroblasts were present in considerable numbers; nearly all were megaloblasts, which in a count of five films averaged 150 per cubic millimetre. A few myelocytes were found in each film. A blood count on Feb. 21st resulted as follows: hæmoglobin, 10 per cent.; red blood corpuscles, 400,000 per cubic millimetre; and white blood corpuscles, 3000 per cubic millimetre. For a few days after admission the patient said that she felt a little better. She, however, got gradually weaker and died on Feb. 22nd, 11 days after admission. For 24 hours before death she complained of severe abdominal pain.

Necropsy.—At the post-mortem examination there was general pallor of all the organs. A few tuberculous nodules were present in the apex of the right lung. The heart was very pale; it contained a considerable quantity of fluid blood and beneath the pericardium were many small irregular hæmorrhages. The spleen was purplish in colour, of firm consistence, and showed thickened trabeculæ. Microscopic examination showed few or no iron granules. The medulla of the suprarenals was very small. The alimentary canal showed no naked-eye lesions. The bone marrow of the humerus and femur was examined and found to be red throughout. Smears were examined microscopically from the bone marrow, the liver, and the spleen. The bone marrow showed megaloblastic degeneration. Normal red cells were present, as were also numerous erythroblasts, almost all of which were megaloblasts and gigantoblasts. The white cells were mostly large, mononuclear, and non-granular. The liver was very pale and fatty and also had a mottled appearance. Sections under the microscope showed a large quantity of pigment in the liver cells consisting of yellow granules uniformly distributed and deposited in the outer two-thirds of the lobules. Ferrocyanide of potassium and diluted hydrochloric acid showed the pigment to be free iron. The spleen showed no excess of iron. There was no deposit of iron in the tubules of the kidney which, however, showed desquamative nephritis. (May this absence of iron from the kidneys not be explained by the nephritis impairing the excretory action of the kidney cells?)

Remarks.—That anæmia following parturition occurs with considerable frequency is well recognised. There is usually at the same time some causal factor—either small but repeated losses of blood during pregnancy or a more or less severe post-partum hæmorrhage—which amply accounts for the condition. The result, too, is favourable and most cases are relieved in a few weeks' time. In none of these, however serious the loss of blood may be, does one ever get a picture which is anything more than that of a severe secondary anæmia. It is extremely difficult in face of the most recent investigations into the causation of anæmia of the progressive pernicious type, attempting as they do to include that disease among chronic infective troubles, to assign to pregnancy and parturition their share, if any, in the production or even aggravation of such a condition. Earlier observers in their etiological classification of anæmias of the progressive pernicious type almost always included pregnancy and parturition as factors in a considerable number of their cases. Eichhorst in his etiological grouping includes under secondary pernicious anæmia 29 cases in which pregnancy and child-birth were the causal factors. Osler in his 27 cases includes five which followed parturition and in which an anæmia developed not to be distinguished from idiopathic pernicious anæmia. Of late years, however, not only have reported cases of pernicious anæmia following pregnancy and parturition been very infrequent, but by writers they have been excluded as etiologically having no influence in the origin of the disease.[1]

Ewing in his book on the "Clinical Pathology of the Blood" refers to the gradual disappearance from literature of cases of pernicious anæmia following pregnancy, mentioning that Ehrlich could find only one case in recent literature—one under the care of Laache recorded in 1883. Ewing himself a Sloane Maternity Hospital from 1892 to 1899 saw many case of severe anæmia but none of the progressive pernicious typ He concludes that the "rather numerous current reports o severe anæmia following pregnancy refer to a secondary typ of anæmia." Pregnancy therefore has no specific influenc in the origin of the disease and the veritable cases whic follow parturition are probably "referable to hæmorrhag and various unhygienic conditions."

It is very doubtful indeed if even the most severe secondary anæmia ever passes over to the pernicious type. In the two cases above recorded a typical anæmia of the progressive pernicious type was present in each, as evidenced by the reports of the blood examinations and the post-mortem examination held on one of them, and, further, we could absolutely exclude such conditions as hæmorrhage or unhygienic surroundings as in any way having been causal factors in the production of the anæmia. In both cases we found, as far as could be ascertained, two healthy women up to the date of their last pregnancies. During the course of the pregnancy there was only a history in one of them of some slight ill health, as compared with her previous condition. She was always able to be about and to do ordinary household duties. In both also we found after labour, without post-partum hæmorrhage, a sudden onset of a rapidly progressive anæmia, terminating fatally in one case in five weeks and in the other in ten and a half weeks. It is, of course, impossible exactly to fix the date of onset of the anæmia, but it is more than probable that in both the condition which underlies the production of such an anæmia did not begin to operate till after labour and this sudden onset, combined with the rapidly fatal termination, would seem to indicate some relationship between the anæmia and parturition in both cases. Dr. Hunter in his work on "Pernicious Anæmia" associates a chronic infective gastro-enteritis, following on decaying teeth, with the etiology of the disease. It is curious that in both these cases and more particularly in Case 2 we found a very bad condition of the teeth present, without being able to obtain any history of chronic gastric or intestinal troubles in either. That they may have existed, have been slight, and so difficult to elicit we have to admit. Both these cases would then be looked on as etiologically following Dr. Hunter's classification. In Case 2 in which a post-mortem examination was made, the stomach and intestines were reported to be healthy, but even if still we admit the gastro-intestinal tract as the site of the infection, such a causation fails to account satisfactorily for the very sudden onset or aggravation of the condition after parturition. From the group of idiopathic pernicious anæmias we now know have to be separated cases which, both in the condition of the blood and in the state of the organs post mortem, give a typical picture of pernicious anæmia and can be explained etiologically by the presence in the alimentary canal of bothriocephalus latus and ankylostoma duodenale. In these cases the hæmolytic changes in the blood are probably the result of a specific toxin. For some days before death both in a degree, but more especially the patient in Case 1, showed toxæmic symptoms, as evidenced by the considerable elevation of temperature with some vomiting and diarrhœa. In these two cases and in others following parturition may not the hæmolysis similarly result from toxic products thrown into the blood after parturition, or if the condition be already present during or before pregnancy may not an aggravation of the already existing pernicious anæmia be produced by substances which chemically favour hæmolysis?

---

[1] This paper was written before the appearance of Dr. W. Hunter's recent contributions to THE LANCET, Jan. 31st (p. 283) and Feb. 7th (p. 367), 1903.

A CASE OF SEPTICÆMIA.[1]

BY F. J. STRONG HEANEY, M.A., M.D. DUB., F.R.C.S. IREL.,

HONORARY SURGEON, VICTORIA HOSPITAL, BLACKPOOL.

THE following case deserves to be reported as well for the interesting group of symptoms presented as for its bearing on the question of the efficacy of antistreptococcic serum.

On May 5th, 1903, I was called to see a woman, aged 21 years, complaining of headache, pains in the joints and muscles, and an eruption on the legs. A fortnight previously she had sustained an injury to the right great toe which in the course of a week had led to a gathering beneath the nail and a swelling in the groin. With the appearance of the swelling, pains developed in the joints and muscles. On two occasions the patient had shivering fits, lasting on each occasion for a couple of minutes. The rash was noticed on the twelfth day from the injury. Though feeling very ill and wretched the patient continued at her household work until the day before my visit, when after vomiting twice she broke down and took to her bed.

On examination the patient was flushed and breathing heavily. The eyes were somewhat bloodshot and the lips were covered with sordes. The tongue was dry, furred, and tremulous. The inside of the cheeks, the fauces, and the pharynx were swollen and of a dusky red colour. The temperature was 104° F. and the pulse was 100. The heart sounds were normal and the respiratory sounds, except for an occasional râle, were healthy. There were no evidences of abdominal disease.

The nail of the great toe was raised from the matrix by a collection of fluid which on incision proved to be turbid serum with a single drop of pus towards the end. The swelling in the groin consisted of a mass of inflamed femoral glands, tender to the touch but without sign of suppuration. The most interesting point, however, at this stage of the case was the variety of skin lesions presented. On the face were groups of herpetic vesicles in five different situations—viz., on the forehead, on the upper and lower lips, and on both lower eyelids. On the trunk and limbs were numbers of pustules grouped most thickly around the folds of the groins, armpits, and knees, and on the legs from the knees downwards. In this last situation but confined to the front and sides of the limbs a number of raised patches were seen, very tender and of a purplish-red colour which faded gradually into the surrounding skin—in fact, presenting the typical appearance of erythema nodosum. At this stage the arms were free from these erythematous patches but subsequently one did make its appearance over the left ulna. Subsequently, too, a scarlatiniform rash appeared on the dorsum of each foot and on those parts of the legs which were not already occupied by the pustules and erythematous nodules. This scarlatiniform rash, having persisted a single day in its original form, became purulent by the development of a thin but almost continuous layer of pus beneath the cuticle.

Having regard to the focus of suppuration and the implication of the femoral glands the presumption in diagnosis was in favour of a septicæmic process, but in the presence of erythema nodosum and joint pains I thought it better to exclude simple acute rheumatism by administering a short course of salicylates and accordingly the patient was in the first instance placed on ten-grain doses of salicylate of soda every three hours. This had no effect on her general condition. On the next day the temperature had risen one degree and the pulse had increased to 128. A loud systolic murmur was now for the first time audible, heard best over the mitral area and traceable to the axilla. A specimen of blood reacted negatively to the Widal test but showed an increase in the number of white corpuscles. A culture was made and gave a growth of staphylococci and diplococci. The presence of two distinct organisms was, of course, suspicious of an artificial inoculation of the culture, but a second specimen taken with most elaborate precautions having come to grief diagnosis had to be based mainly on the symptoms.

For the first four days subsequent to coming under observation the patient became gradually worse. On the fourth day on auscultation the cardiac murmur might be heard to alter its character from time to time, being at one moment soft and blowing and at another quite loud and harsh and obviously non-functional in character. The respiratory sounds had now assumed a peculiar character; both inspiration and expiration were prolonged and noisy, simulating to some extent bronchial breathing. Towards the evening of that (the fourth) day the scarlatiniform rash already referred to appeared and also additional clusters of herpes on both upper eyelids. Though no streptococci had been found in the blood I determined to try the effect of antistreptococcic serum and at 9 P.M. 10 cubic centimetres were injected. In the course of the night the temperature fell two and a half degrees and the patient felt easier. On the next morning from 6 A.M., to 10 A.M. it again rose and at 1 P.M. another 10 cubic centimetres of the serum were injected. The temperature again fell, but only to rise again to its former height after about 12 hours. The injections were continued twice daily with like result till May 12th and then once daily till the 14th, when the temperature was normal and showed no disposition to rise. The other symptoms progressively diminished in severity and the various skin lesions cleared up. The cardiac murmur continued quite loud till May 21st, when it, too, began to grow faint and by the 28th it had completely disappeared and has not since returned.

There are many points of interest in the case. As regards the nature of the fluid evacuated from the seat of the primary lesion, I have mentioned above that it consisted of turbid serum (there had been no initial blood effusion) followed by a drop of pus. I have often noticed in inflammatory conditions of the extremities that when the contents of the abscess are thin and serous rather than creamy and purulent the local and constitutional symptoms tend to be more severe.

As to the skin lesions, the occurrence of erythema nodosum is unusual in such cases. Erythema multiforme, with sharply defined outlines, is a commoner phenomenon. Since treating this case, however, I have read a report of a case of septicæmia by Sir Dyce Duckworth in which he noted the occurrence of typical erythema nodosum. The distribution of the facial herpes was in my experience unique. I have frequently seen a greater number of vesicles and sometimes a wider area of the face involved, but never a distribution over so many different branches of the nerve. Seven in all were affected.

There can be little doubt that the abnormal heart sounds which developed while the patient was under observation were due to acute endocarditis and the manner in which this condition cleared up was a source of great satisfaction to all parties concerned. But the result is in keeping with what we know of such cases. As a general rule, if the patient survives at all he does so with a sound heart, thus contrasting favourably in one respect with rheumatic endocarditis and its high percentage of permanent heart lesions.

As regards treatment, the effect of each injection was so marked and so uniform that recovery may fairly be attributed to the serum. Of late the reputation of this preparation has been on the wane, many writers denying that it is ever effective. In my humble judgment it is effective and the present case, in which no streptococci were found, suggests the idea that its efficiency may not be limited to those cases where the infection is due to the particular strain of organism used in producing the serum.

---

[1] A paper read before the Fylde Medical Society on June 30th, 1903.

Blackpool.

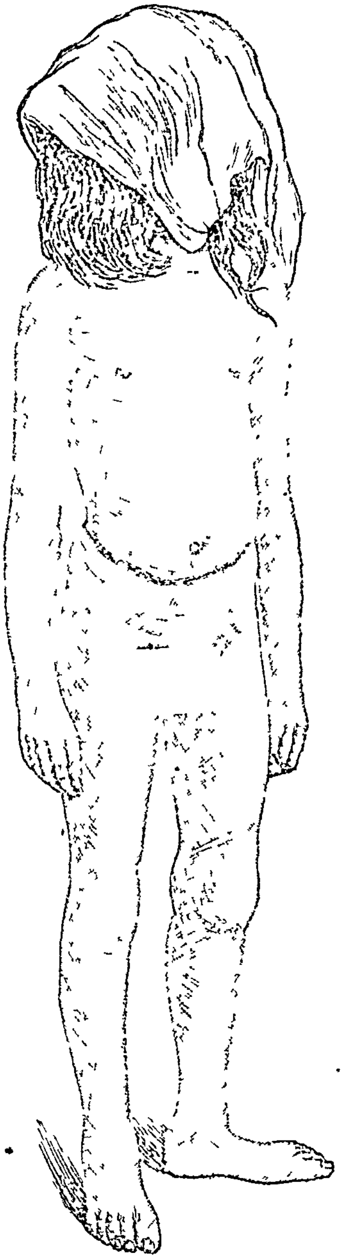
CICATRICIAL CONSTRICTION OF THE ABDOMINAL WALL AND OF THE LEFT THIGH ATTRIBUTED TO COMPRESSION BY THE UMBILICAL CORD.

BY C. O. HAWTHORNE, M.D. GLASG., M.R.C.P. LOND.,
PHYSICIAN TO THE CENTRAL LONDON OPHTHALMIC HOSPITAL; ASSISTANT PHYSICIAN TO THE NORTH-WEST LONDON HOSPITAL AND TO THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN.

THE unusual conditions existing in this case[1] are clearly displayed in the accompanying illustrations (see Figs. 1 and 2). As is shown in the figures there is a narrow cicatricial band forming a complete girdle of constriction in the abdominal wall. This occurs on the posterior aspect of the body at the level of the third lumbar spine; on each side it passes forwards and slightly downwards just above the iliac crest and the circle is concluded in front at a point one and a quarter inches below the umbilicus. The cicatrix appears to involve only the superficial part of the skin but it grips the abdominal wall to such an extent that it produces a groove which in the anterior part is depressed from a quarter to half an inch below the surface. Behind there is some appearance of a double groove but this cannot be traced in the lateral and anterior parts of the circle. The lower part of the left thigh also shows a depression or furrow placed obliquely immediately above the knee. The skin here betrays no distinctly cicatricial change and the constriction is much less acute than that in the abdominal wall. These conditions have without doubt been present from birth. Unfortunately it has not been possible to trace the practitioner who was in attendance when the child was born—she is now ten years of age—and therefore expert testimony in reference to the then existing facts is not available. But according to the mother's statement, delivery took place at the seventh month and the grooves on the abdominal wall and thigh were occupied by the umbilical cord. The same witness credits the medical man with the remark that "had the pregnancy gone to full time the child would have been cut into three parts."

The chief feature of interest in the case is the question of the agency by which the grooves in the abdominal wall and thigh were produced. It may be assumed that at the time of birth these depressions were certainly occupied by the umbilical cord, because, apart from the mother's statement as quoted above, other cases have been recorded in which a loop of the cord has been found in somewhat similar constrictions, at least in the case of the limbs. Thus it may be fairly argued that there is a *primâ-facie* case in favour of the umbilical cord as the constricting agent. But the evidence is not quite conclusive, for it must be allowed that given, during intra-uterine life, the formation of grooves upon the surface from any cause whatsoever, the mechanical conditions are such as would lead more or less readily to the reception and retention of the umbilical cord within such depressions. It is therefore possible that occupancy by the cord may be not the cause but the consequence of these constrictions. Hence it must be considered whether there is any other feasible constricting agent. First of all in this respect comes the possibility of bands of tissue taking origin in connexion with the formation of the amnion. These are usually regarded as agents which may lead to intra-uterine amputation of the digits or limbs and some instances have been recorded in which they have been found actually constricting these parts. All that can be said in the present case is that there is no evidence of the existence or action of such bands. In the second place there is the suggestion that constrictions and amputations of the limbs occurring during intra uterine life are due, not to some external agent, but to a trophic or sclerodermic lesion which, whilst primarily affecting the skin, cuts its way, as it were, more or less deeply, and, in the most extreme instances, causes strangulation or even separation of the distal part. Dr. J. W. Ballantyne, who discusses this question in his latest work on "Antenatal Pathology," considers that "no satisfactory explanation of the production of the so-called spontaneous amputations has yet been advanced." In view of so authoritative a statement some reserve in the expression of an opinion is necessary, but it may be permitted to suggest that in the present instance there are facts which support the view that here at all events the umbilical cord is responsible for the existing conditions. Such facts are found more particularly in connexion with the groove on the left thigh. This, it will be observed, has not a circular but a spiral direction and form. Now whilst it may be conceivable that a trophic or sclerodermic lesion may produce a circular constriction of a digit or limb, it is less easy to imagine an oblique or spiral groove, such as is here represented, to be the result of such a lesion. Further, the skin forming the floor of this groove, though perhaps

FIG. 1.



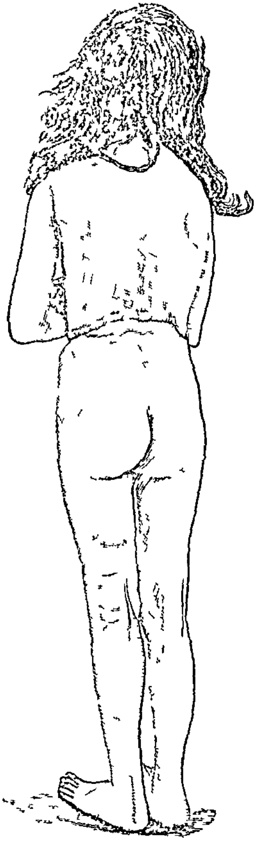
Front view.

---

[1] The patient was shown before the Society for the Study of Diseases in Children in November, 1902.

somewhat atrophic, is apparently normal in every other respect; the appearances are just what might be expected from prolonged compression by a broad, smooth ligature Add to these facts the further fact (as it may be assumed to be) that the cord was found in the groove at the time of the child's birth, and the evidence supporting the theory that the cord is responsible for the existence of the groove is, it must be admitted, very strong, if not actually conclusive. But if this view holds good in reference to the thigh it must apply with almost equal force to the constriction of the abdominal wall It is only necessary to suppose a greater degree of tension to explain both the more marked depression and the definite cicatricial change This hypothesis also accommodates itself to the appearance of a double groove on the posterior wall of the abdomen with the existence of a single furrow in the rest of the circle, for in the former position the firm structure of the wall opposes a deep depression and thus a limited play of the cord from one level to another becomes possible, whereas the yielding nature of the lateral and anterior abdominal walls favours the ready formation of a deep and narrow furrow along the line of which the compressing action of a tense cord would be continuous

FIG 2.



Back view

Such a conclusion bears upon the question of the causation of intra uterine amputations. That the agency producing these is identical with that producing constrictions of the limbs is fairly certain, for in addition to the common sense presumption that amputation is merely constriction carried to an extreme degree, there is the observation that both conditions may be present in one and the same child An example of this association was recently shown at the Polyclinic, the case being that of an infant born minus several fingers and with a deep constricting groove around one leg But if intra uterine amputations are, or may be, due to the same cause as that which produces constrictions of the limbs, and if, as is rendered in the highest degree probable from the present case, such constrictions may be caused by the umbilical cord acting as a constricting agent, it follows that intra uterine amputations may also be accomplished by the cord or other band external to the body of the fœtus Hence the present case may be advanced as a contribution to the discussion of the mechanism of intra uterine amputations and its influence goes to prove that such amputations are caused by extra fœtal bands constricting in an extreme fashion the affected part. The argument in brief, therefore, is that intra uterine amputations and constrictions of the limbs are produced by one and the same agency, that, as is here shown, such constrictions may be caused by an external constricting band, in this instance the umbilical cord, and that consequently such bands must be held responsible for the occurrence of intra uterine amputations

Weymouth street W

OBSERVATIONS ON MASTICATION.

By HARRY CAMPBELL, M D, F R C P LOND,

PHYSICIAN TO THE NORTH WEST LONDON HOSPITAL.

IV[1]

MEANS OF INSURING ADEQUATE MASTICATION

IN order to secure the full advantages accruing from the use of the jaws and their appendages it is above all necessary for them to be adequately exercised during the period of development. If this is done not only will the tendency to dental caries, adenoids, indigestion, and other evils be greatly diminished, but the masticatory instinct will establish itself as a permanent force, so that the individual will tend for the rest of his life to subject even soft foods to thorough mastication The tongue, the lips, and the jaws of the newly born child find their natural exercise at the mother's breast and we should, therefore, do our utmost to get the mother to suckle her child, the bottle affording neither the same kind nor the same amount of exercise If, unhappily, we fail in this we must see that the teat of the feeding bottle is so constructed as to compel the child to earn his meal by, at any rate, some exercise This kind of exercise promotes the growth of the tongue and thus of the jaws, especially of the mandible Directly the infant shows a disposition to bite hard things the instinct should be gratified We may observe a tendency in this direction as early as the third or fourth month and it becomes more and more pronounced when, the time for the eruption of the teeth approaching, the gums begin to swell up and to get tender and saliva begins to flow from the mouth, it is now more than ever necessary to provide the child with hard substances on which to exercise the jaws and the gums, and a great deal of the trouble of teething is due to the failure to recognise this fact. What, then, are we to employ for this purpose? I am convinced that it is a mistake to rely solely, or even mainly, upon baubles of ivory, coral, and the like, useful though these may be in their way, it is far better to give the child something which is not only hard but nutrient and pleasant to the taste, something which will at one and the same time exercise the maxillary apparatus, excite the gustatory organs, and provide a certain amount of nutriment. To this end we may as the teething time approaches give a chop or chicken bone from which most of the meat has been removed, by powdering the bone with white sugar or salt we may increase its attractiveness From such bones a good deal of nutriment can be extracted, and this of a kind which is most acceptable to the infant stomach, for it must be remembered that the young human is in the main carnivorous. Indeed, since milk is a purely animal diet all the mammals must be regarded as essentially carnivorous during the period of suckling, while man, as already observed, from the time he emerged from the anthropoid until he learned to cook his food, was throughout life mainly an animal feeder. Therefore we should not hesitate to allow the teething infant animal food in the form suggested. Chicken and chop bones, yielding as they do before the pressure on the gums, are, moreover, just of the right degree of consistence for the purpose in view, while they afford abundant exercise for the tongue; ivory, coral, and the like are, on the other hand, too hard and unyielding and lack, moreover, the attractiveness belonging to sapidity.

---

[1] Nos I, II and III were published in THE LANCET of July 11th (p 84), 18th (p. 150), and 25th (p 2[illegible]6), 1903, respectively

By thus providing the maxillary apparatus with suitable exercise we shall do much to facilitate the eruption of the teeth and to favour the growth of the jaws and their appendages, including the salivary glands, and so to prepare the mouth for the reception of vegetable food. This should, of course, not be given till the teeth appear. The order in which these make their appearance gives some indication as to the order in which vegetable food should be administered to the child. The first teeth to penetrate the gums are the lower incisors which appear from the seventh to the eighth month; then follow the upper incisors from the seventh to the tenth month. These teeth enable the child to *bite*, but not, be it observed, to *masticate*, for which function the molars are necessary. Now the first molars do not appear till the twelfth or fourteenth month, the second molars not till between the fourteenth and the twentieth month, and it seems to me certain that our primitive ancestors could not have obtained starch in any quantity until they reached this age; at the best, pre-cooking man was but scantily supplied with starch, and such slender supply as he had could only be rendered accessible to the digestive juices by vigorous mastication which broke up the indigestible cellulose framework in which all vegetable starch is contained; hence until the young human cut his molars he had little opportunity of securing any starch. These considerations strongly suggest the desirability of giving but small quantities of starch before the twelfth month, and though the facts that ptyaline appears in the saliva about the time the first incisors are cut and that pancreatic juice develops its amylolytic ferment at the same time show that the digestive organs are ready for the reception of some starch at the seventh or eighth month, yet I believe the quantity should be strictly limited. I am ready to admit that the modern child may have, indeed probably has, a greater power of digesting starch than his remote pre-agricultural ancestor, but even so I am convinced that we should be on our guard not to over-gorge infants with this substance. Only a small quantity should be given before the twelfth month and it should be gradually increased up to the twentieth month.

I have said that the pre-agricultural infant was unable to secure starch in any quantity by means of his incisors. These teeth enabled him, however, to obtain some soluble nutriment from fruits and Dr. Sim Wallace has suggested that the early eruption of the lower incisors is for the purpose of enabling the infant to pierce the outer covering of fruits so as to permit him to extract the soluble contents by suction; and accordingly when these teeth are cut we may allow the child to bite at such vegetable substances as apples, oranges, and sugar cane. The latter is a useful article of diet for children, for it provides soluble saccharide in a diluted form and it is advisable that the child should receive his cane sugar well diluted, for it must be remembered that before the agricultural period man's supply of pure sugar was limited to wild honey which, consisting as it does almost entirely of mono-saccharide (grape sugar and fruit sugar), is very easily disposed of by the digestive organs. Nowadays the less digestible cane sugar (which is a di-saccharide) is very largely consumed in the undiluted state, in which it is apt to set up disturbance. When, however, it is obtained by chewing the sugar cane it is diluted both by the water in the cane and by the saliva and I should like to see children obtain most of their cane sugar in this way.

The consideration of the conditions obtaining for pre-agricultural man not only strongly suggests that the young human of to-day should be given starch in very moderate quantities up to the twelfth month, but it points an even more important lesson—viz., that this substance should be given *not, as is the custom, as liquid or pap but in a form compelling vigorous mastication*, for it is certain that early man from the time he emerged from the ape till he discovered how to cook his vegetable food obtained practically all his starch in such a form; it cannot too often be repeated that uncooked starch in the natural state, locked up as it is in chambers of indigestible cellulose, has no nutritive value; these chambers need first to be broken up by prolonged and energetic chewing, and in this way *much or most of the starch is converted in the mouth into dextrines and maltose, very little passing into the stomach in the crude state* to set up disturbance in that organ and later in the bowel. If it is given as liquid or pap it will pass down as starch into the stomach, while if it is administered in a form which obliges the child to chew it properly, not only will the jaws, the teeth, and the gums obtain the exercise which they crave and without which they cannot develop normally, but the starch will be so thoroughly insalivated that much of it will be converted within the mouth into maltose. How foolish to upset the child's digestive system by deluging it with liquid starch and then to endeavour to correct matters by giving the malt extract which the child can and should himself manufacture within the laboratory of his buccal cavity.

Clearly, then, the child should make his first acquaintance with starch, not in the form of a liquid or pappy patent food, but in a solid and somewhat tough form. The best means of achieving this end is occupying my attention and I hope soon to publish the results of my investigation. Meanwhile, I would point out that hard, well-baked crusts constitute a convenient form in which to administer starch to children. A piece of crust may be put in the oven and rebaked; this not only hardens it but helps to convert the starch into dextrine which is a stage on the road to maltose. If the crust be then cut into a suitable shape and spread with bacon fat or fresh butter it constitutes a most agreeable morsel. Later we may give hard plain biscuits. The same principle should be acted upon during later childhood and youth: we should always give, as far as possible, the starch in a form compelling abundant mastication. Loaves should be shaped so as to give a maximum of crust and a minimum of crumb and should be baked hard. Such loaves are quite as nutritious as the ordinary ones and much more digestible, containing as they do an abundance of dextrine and not a little maltose, and compelling efficient mastication, especially if eaten, as they should be, without any fluid. A lady who has the catering for a large number of girls gives the bread in this way and she tells me that there is keen competition for the most crusty portions.

I do not say that starch in the liquid and pappy form should find no place whatever in man's dietary at the present day, for this would imply the prohibition of porridge, boiled potatoes, milk puddings, and the like. We cannot put back the hand of time and return to the food of our primitive ancestors, nor is it desirable that we should, but we can, at least, arrange matters so that a large proportion of the starch we consume shall be in a form inviting mastication, such as crusts, stale bread, stale cake, biscuits, and so forth. The less children eat of pastry, or, indeed, of any luxurious foods, the better; if brought up on a healthy dietary and under healthy conditions generally they will relish their simple fare more than the choicest dishes of the epicure. I do not, I say, object to the child consuming a certain proportion of starch in the liquid or pultaceous form, for if by bringing him up on a rational dietary his instinct to masticate be afforded due opportunity to develop he will be likely to subject even soft vegetable food to something like adequate mastication; this will tend to mitigate the evils associated with such food, not only by facilitating the digestion of starch, but by flushing the mouth and promoting the health of the teeth and buccal mucous membrane.

The question how far children should be allowed to crack nuts may here be considered. If the child has been brought up on pappy food, and has in consequence brittle and ill-developed teeth, the cracking of hard nuts will be likely to injure them, and this is *a fortiori* true if any of the teeth are carious or "filled." And not only nuts but hard food of any kind, such as ship's biscuits, may in these circumstances injure the teeth, as many of those who went through the recent South African campaign can testify. But if, on the other hand, the child has from the beginning been fed on coarse hard foods, so that the teeth have been allowed to grow dense and strong, no harm is likely to ensue from cracking such nuts as filberts and Spanish nuts. If a squirrel or a monkey weighing a few pounds can do so with impunity surely the young human should be able to also. The cracking should, however, be done by the molars, while such hard nuts as Brazils had best not be tackled at all.

Animal food does not need the same amount of mastication as vegetable food since it is not digested in the mouth, though some contend that the mixture of proteid with alkaline saliva facilitates its subsequent peptonisation. Cooked animal food is, however, all the better for some mastication owing to the coagulation of the proteids, and in order to insure the efficient mastication of meat, fish, and poultry Dr. Sim Wallace recommends that they should be given in large pieces cut thin. "Flat pieces about one inch square generally *necessitate* a certain amount of mastication. It is difficult to swallow large flat pieces of meat without mastication, but when finely minced little or no mastication is called forth." The younger the child the more underdone should the meat be.

EXAMINATION OF THE MOUTH AND ADJACENT PARTS.

If a child be brought up on the lines indicated and under healthy conditions generally it is tolerably certain that the maxillary apparatus will develop normally, that the teeth will be strong and well opposed, and show little tendency to disease; but inasmuch as the methods advocated are but seldom put into practice disorders of the teeth, more especially caries and irregularities, are common, and hence with a view to promote more efficient mastication it is always advisable to examine our patient's teeth.

Each individual tooth should be inspected in a good light for the presence of caries and careful note should be taken of the "bite," a normal bite implying not only a proper opposition of the two rows of teeth but the capacity of the lower ones to move freely across the upper; mere vertical movement of the mandible does not constitute efficient mastication. In this connexion it must not be forgotten that an unopposed molar is useless for purposes of mastication, and it is by no means rare to find in a mouth several sound unopposed molars which are for this reason absolutely functionless. Nay, more than this, it may happen that teeth, perfectly sound ones, too, far from helping, may actually interfere with mastication; thus among the poor we sometimes find all the teeth gone save the upper canines and the lower incisors, and the teeth and gums being alike unable to come into contact nothing worthy of the name of mastication is possible; it would be far better to be without any teeth whatever, for the toothless gums would then be permitted to come into contact along their entire extent, under which condition they gradually harden and come to be quite efficient grinding agents.

Next the gums, the alveoli, and the roots of the teeth must be examined, especially for the presence of erosion, tartar, and *pyorrhœa alveolaris, this latter condition being evidenced* by the welling-up of pus upon pressing the gums against the sides of the teeth.

If our examination of the mouth discloses anything likely to interfere with mastication the aid of the dentist should at once be sought, but every physician should be so far acquainted with disorders of the teeth as to be able to say, in the majority of cases, at all events, when this is necessary. I am convinced that far more illness than is generally supposed is attributable to dental defects and this even among the more leisured classes. With regard to pyorrhœa alveolaris, it has to be remembered that it not only does harm by causing loosening, lengthening, and shedding of the teeth and thus interfering with mastication, but also by contaminating the stomach and the blood and thus upsetting the digestion and causing constitutional diseases such as anæmia and arthritis; and inasmuch as poisonous discharges from the nose, the naso-pharynx, the pharynx, and the tonsils may act in a similar way, these parts also should be inspected in connexion with the examination of the teeth In the dust-laden atmosphere of towns they are very liable to disease and even when healthy are necessarily dirtied; some go so far as to advise all town dwellers daily to wash out the nasal passages and to gargle the throat, but whatever [illegible] certain that under existing [illegible]s are needed in order to keep [illegible] teeth clean. [illegible]hen man fed on raw food this was not necessary, the food itself and the copious flow of saliva induced by prolonged mastication effectually cleansing these parts; but, under present conditions, food tends to remain within the mouth, especially between the teeth and in their crevices and therefore special means are needed to remove it. This is done by "cleaning the teeth" and by rinsing the mouth.

The tooth-brush.—Probably the ideal method of cleaning the teeth is that adopted by many primitive and not a few semi-civilised peoples—viz., rubbing them with a twig of wood which has been teased out at one end so as to form a sort of brush by means of which the teeth can be burnished and food dislodged from them. The modern tooth-brush requires to be used with great caution as it is capable of doing much harm, not only by removing the mucoid film which according to Dr. Wallace protects the teeth from corroding agencies,[2] but probably also by injuring the edge of the gum and the neck of the teeth and thus setting up the condition known as "erosion." Certain it is that some of the best sets of teeth I have encountered have been wholly unacquainted with the tooth-brush. In any case the brush should be employed with great care; it should be soft and should always be drawn away from the gums both on the inner and outer aspect of the teeth towards the biting surface as well as across the latter, never tranversely across the outer surfaces, as so frequently is done. The object of these procedures is to dislodge any particles of food that may have collected between the teeth or in their crevices. For this purpose the tooth-pick may also be employed judiciously. In order to render the enamel of the teeth white it is better to rub each tooth carefully with some soft material, such as chamois leather, rather than to scrub them with a brush. Tooth-powders should not be used as a matter of routine but only occasionally and for appearance rather than for cleanliness and should consist of some simple non-irritant material. Antiseptic powders and washes are to be scrupulously avoided, for it is neither desirable nor possible to render the buccal cavity aseptic; myriads of bacteria flourish within it, many of which play a useful part as scavengers. The time of all others for cleaning the teeth is just before going to bed, so that the food shall not be allowed to decompose in the mouth during the night. There will then be no need to use the tooth-brush in the morning.

Rinsing the mouth.—The mouth should be rinsed out as a matter of routine after each meal and on rising, and care should be taken to do this before the early cup of tea so as not to contaminate the stomach with the buccal secretions which have accumulated during the night. Inasmuch as raw vegetable food has a cleansing effect on the teeth it is often a wise plan, especially in the case of children, to finish a meal with some kind of fruit, such as an apple or an orange. It hardly seems necessary to insist upon the necessity for keeping all artificial dentures thoroughly clean.

AN ANALYSIS OF THE VACCINATION STATISTICS OF THE METROPOLITAN ASYLUMS BOARD FOR 1901 AND 1902.

BY J. E. SANDILANDS, M.D. CANTAB.,

LATE ASSISTANT MEDICAL OFFICER ON THE SMALL-POX SHIPS, DARTFORD.

WITH the appearance of the annual report of the Metropolitan *Asylums* Board for 1902[3] access is given to *one of* the most valuable contributions to the question of vaccination and small-pox hitherto published. Unfortunately, those who will have the leisure to study the figures set forth by the statistical committee must of necessity be few and an attempt has accordingly been made to summarise in the following paper the facts which everyone is anxious to know but which everyone has not the time to seek out for himself. For this purpose the figures for 1901 and 1902[4] have been combined and a total of 9659 cases of small-pox has in this way been obtained for analysis. The age incidence and mortality in unvaccinated cases are too familiar to need more than a passing comment. The incidence in early life is overwhelming and the mortality at all age periods is high, varying between 20 and 50 per cent. The figures in the annual report show the unvaccinated cases in the late epidemic to have followed this general rule. The incidence of vaccinated cases is small in early life and reaches its maximum in the third decade, whilst the mortality increases with each decade, reaching to about its maximum in the group of confluent vesicles, as would be conferred by making four separate scarifications over smaller areas. Explanations are a source of comfort to those who can accept them and of vexation to those who cannot. In any case they are of secondary importance and if the public can be induced to recognise that four large scars are associated with a higher state of protection than one small scar and to condemn the practice of vaccination by less than four insertions they need not be burdened with the explanation of these mysteries.

---

[2] This film can be felt by the tongue as a somewhat rough covering which gives place to a smooth surface after the use of the tooth-brush.

[3] Metropolitan Asylums Board Annual Reports, 1901, 1902 (Reports of the Statistical Committee).

[4] Ibid.

A NOTE ON COLOTOMY AND COLECTOMY.[1]

BY F. T. PAUL, F.R.C.S. ENG.,
SURGEON TO THE LIVERPOOL ROYAL INFIRMARY; PROFESSOR OF MEDICAL JURISPRUDENCE AND LECTURER ON DENTAL ANATOMY AT UNIVERSITY COLLEGE, LIVERPOOL.

SOME ten years ago the value of colotomy in cases of rectal cancer was discussed at this society. At that time several of the most experienced members of the Liverpool Medical Institution were only prepared to advocate it as a means of giving relief when the most urgent and distressing symptoms were present. I remember that it was classed with gastrostomy and gastro-enterostomy for malignant stricture as dangerous to life and as producing other ills almost, if not altogether, as unpleasant as those which it was designed to relieve. We may truly say now that we have changed all this, not only for colotomy, but for gastrostomy and gastro-enterostomy as well, but especially as regards colotomy. And it is felt now that it is right to recommend the latter in any case of rectal cancer unsuitable for excision in which distressing symptoms are present or are indicated; indeed, enthusiasts (and I may include myself) for high operations in extensive rectal cancer seem to be inclining again to substitute a permanent iliac colotomy for these very serious and wide operations, or to do it as a preliminary, and so to lessen the risk of the subsequent proceeding.

Modern colotomy has unquestionably gained in favour, and this gain is due to two causes: (1) lower mortality and (2) improved artificial anus. The latter has, I consider, been the more important factor, for when a patient is labouring under a mortal disease it is more a question of comfort and the capacity to continue his daily avocation than the simple prolongation of a more or less miserable existence. In the discussion to which I have referred it seemed to be strongly felt that the discomforts of the artificial anus were frequently as great as those of the malignant ulceration. The want of control over the evacuations, the dependence upon assistance after each movement of the bowels, and the rather frequent occurrence of prolapse certainly rendered the life of a colotomy patient a far from happy existence. Now usually very fair control is established in most cases, and prolapse hardly ever occurs, whilst with an anterior opening the patient can attend to himself—a condition of independence which is greatly appreciated by the good, hopeful, deserving class of patients. I have no sympathy with those who give in. It is the duty of all of us, not only to live, but to work as long as we are able, and it is as we all know quite possible for any colotomy patient not otherwise disabled to do his daily work, whether manual or sedentary, when the artificial anus is a good one.

Amongst the various suggested methods for performing iliac colotomy it must be conceded that, at any rate in England, Cripps's method is that which has met with most general favour; indeed, Mr. Herbert Allingham, who advocated a rival method, has of late accepted the former except in cases in which the sigmoid mesentery is long and the patient may be expected to survive a considerable time. In my judgment Allingham's present position is a wise one. The variability of the anatomical conditions of the sigmoid flexure is such as to render it impossible that the same method of dealing with it can be the best for every case, and it certainly seems the fact that when the flexure is voluminous and its mesentery long Cripps's method, however carefully accomplished, is very likely to be followed by a moist patulous anus, over which it is difficult to create any control and through which prolapse of bowel is very probable. Allingham's procedure is undoubtedly rather more severe, but it results in an excellent orifice and the increased comfort when the operation is properly indicated is well worth the increased risk. The results desired from a colotomy are (1) relief, (2) safety, and (3) comfort.

First, as to relief. In cases of obstruction immediate relief is urgent. This perhaps applies to 20 per cent. of the cases; less when the disease is in the rectum; but more when it is in the colon. When the operation is undertaken with the necessity of giving immediate relief I urge the glass-tube method, and I may do this with more confidence now than in 1891 when I first introduced it, since not only has my personal experience of the method been fairly considerable since that time, but I gather that it is now generally practised in these circumstances. Cripps's and Allingham's operations do not provide for the immediate opening of the bowel; but I have practised both operations many times, and in all sorts of circumstances, in conjunction with the glass tube, and have no reason to think that these operations are rendered appreciably more dangerous thereby. If this experience is correct and it is true—as I believe it to be—that opening the bowel at the time of the primary operation by the glass-tube method does not appreciably increase the risk to life, then it is certainly a desirable addition in most cases, for not only is it convenient that the bowel should be open and free for the passage of flatus or fæces, but the wound in the abdominal wall may be smaller, a point of some importance, and the operation is completed at one sitting. There is no occasion for the subsequent incision and later paring of the mucous membrane required in Cripps's operation, and there are no subsequent clamping and removal of bowel as in Allingham's. I therefore distinctly recommend that in performing either of these operations the glass tube should be used and the bowel opened at once, whether obstruction is present or not.

Next as regards safety. When the patient is in an exhausted condition Cripps's operation with or without the tube should be selected, as the removal of bowel, especially if the mesentery be thick, increases the risk. Should obstruction be present in introducing the tube every precaution must be taken to avoid leakage. In all cases both the bowel and the tube should be attached to the abdominal wall, the bowel by at least two green-gut sutures connecting it with the deep muscular aponeurosis, and the tube by passing its silk ligatures through the skin and knotting them. Then if the tube is accidentally dragged on it is well and safely anchored and when it comes away, if the adhesions between the bowel and the parietal peritoneum are weak, they are backed up by the green-gut sutures.

As regards comfort the essentials are: (1) a high operation, a small wound, and opening the highest portion of colon available, as recommended by Cripps; (2) the formation of a good spur; (3) embodying the principle of Allingham's operation whenever the sigmoid flexure is voluminous and its mesentery long and the patient sufficiently robust to make this wise; and (4) the use of a good plug and the cultivation of a regular habit of bowels. After various trials with trusses and belts I have come to use an aluminium mushroom-shaped plug. The plug or stalk is slightly bulbous and long enough to pass through the whole depth of the abdominal wall. The head or flange is oval-shaped and wide; it is slightly concavo-convex to fit the abdominal surface. A single layer of soft lint with a hole in the middle for the stalk is placed under the flange and a good pad of cotton-wool above it, the whole being kept in place by a narrow abdominal belt, such as I use after appendicectomy. This is the cleanest and by far the most comfortable and effective apparatus I have yet tried.

In 1898 I designed an operation to give better control over the artificial anus. It involved using Madelung's method of closing and returning the rectal end of the bowel into the abdominal cavity, whilst the upper end was brought out at a distance, after having passed between the muscles—in fact, after the principle of Hahn's or Frank's gastrostomy. The operation was effective but dangerous. It was unnecessarily severe and in passing the bowel between the muscles septic infection was liable to occur. For these reasons I soon abandoned it and I think now that sufficiently good control can be obtained by ordinary methods.

The details of a colotomy by the glass-tube method are as follows. 1. The incision is made in accordance with accepted principles, but may be smaller, that is from one and a half to two inches, according to the condition of the abdominal wall and the bowel. 2. If the mesentery be very short the bowel is firmly drawn out and a running suture of medium thick silk is inserted round an oval area involving

---

[1] A paper read at the Liverpool Medical Institution on Feb. 12th, 1903.

as much of the circumference of the bowel as possible, so as to insure its posterior wall being well brought up to the surface to form a good spur. The inclosed area is then gripped with two catch forceps, incised, the tube plugged with wool inserted, and the ligature tied. A second silk ligature is then simply tied over the first to render it more secure and is knotted on the opposite side of the tube. Two or more green-gut sutures are next passed between the outer coats of the bowel and the deep tissues of the wound, and finally the ends of the silk ligatures are passed through the skin and tied so as to secure the tube in case of roughness or accident. *Usually the wound is too small to need any* further sutures. The parts are well powdered with iodoform and dressed with gauze and wool as usual, and a binder split to transmit the tube is firmly applied. If the bowel is empty a light plug of wool is kept in the tube. If loaded with formed motion a sponge bag containing some iodoform wool or wool sprinkled with eucalyptus oil is attached. If with loose motion a short piece of Down Brothers' thin wide indiarubber tubing is attached to the glass-tube and allowed to fall into a basin at the patient's side. 3. If the mesentery be long and the patient in good condition the loose loop of sigmoid flexure should be drawn out, the mesentery ligatured separately, a large tube fastened into the top end and a small one into the bottom end, and then all the redundant bowel cut away. It is better not to ligature the mesentery together with the bowel to the tubes, as unless the grip is very tight some of the vessels are liable to retract and smart hæmorrhage may result. It will be found much safer to tie the mesentery in two or three sections by itself. When the sigmoid mesentery is of medium length either Cripps's or Allingham's method may be used; but in all cases when doing Cripps's operation care must be taken to insert the tube into the highest portion of bowel which can be brought out of the wound and to include the whole, or almost the whole, circumference of the bowel. 4. Usually on the fifth day the tube is ready to come away. When this is the case, indicated by leakage beside the tube, the silk sutures are cut and it is withdrawn. 5. Subsequently the patient is kept in bed, the motions being passed into the dressings until the wound is healed, when the plug and belt are worn.

Colotomy in other regions.—For some time I maintained it was our duty to perform colotomy as low down in the bowel as we could consistently with being well clear of the disease. Now I am inclined to think that there are only two good colotomies—sigmoid and transverse. In the few cases in which I have had to do the latter it has answered very fairly well—not so well as the sigmoid but decidedly better, I consider, than the lumbar operation. Right iliac colotomy I do not like at all; the motions are liquid and quite uncontrollable. I never do it except in cases of obstruction and then only in the hope and expectation that subsequent enterectomy or short-circuiting will be possible. When the cæcum is opened only a small tube should be used, one of from half an inch to five-eighths of an inch in diameter being sufficient.

It has been said that subsequent trouble will result if either the sigmoid flexure or cæcum are opened and attached in the middle line. I have had to do this occasionally and in practice no inconvenience has resulted. This position would never be chosen, but at any time there may be urgent reasons why it should be adopted.

The operation of colotomy is so closely associated with that of colectomy that I can hardly treat of one without reference to the other. Often when colotomy only is intended before exploration colectomy is ultimately undertaken, or the reverse may be the case; whilst, as I have stated, it is no unusual thing for me to cut away several inches of colon with the simple object of improving the character of an artificial anus. When, however, the original intention is colectomy there are a few additional points which need careful consideration. The chief of these are the exact location of the disease and the restoration of the continuity of the bowel.

It is a great misfortune that malignant disease of the colon is so very undemonstrative in early stages. Recently in one week I was asked to see three cases all of which were too late for operation—that is, in all the tumour was hopelessly adherent to neighbouring important structures. This form of cancer is one of the least malignant with which I am acquainted, and could one obtain the cases early enough, as happens more frequently in the rectum, the results would be excellent. In its first stage, however, it apparently sets up no recognisable symptoms and I have no doubt it often exists for several months or a year or two, according to the type of the growth, before any evidence whatever of its presence is afforded. The earliest symptoms are frequently those of intestinal indigestion, brought about by some difficulty in the contents of the bowel passing the diseased part; they are flatulence, slight colicky pains, some distension, and irregularity of the bowels. In other cases there are no obstructive symptoms at first, but mucus and perhaps blood appear in the motions. At a later stage some obstruction is usually present, characterised by *increasing constipation with attacks of colicky pain. Loss* of flesh occurs and ultimately a tumour is discovered in some cases, whilst in others the surgeon is called in because complete obstruction has supervened. The clinical details are influenced by the character of the growth. From 35 to 45 or 50 years of age the disease is generally of the fungating type and produces more of a tumour than an ulcer. In these cases there is often no obstruction but plenty of mucus and blood in the motions. The abdomen is not distended and if carefully palpated the tumour might usually be discovered much earlier than it is. Still, one must bear in mind that the patient suffers little and frequently makes no complaint until it is too late. Indeed, it is sometimes the discovery of the tumour by the patient himself that leads him to consult his medical adviser. From 50 to 70 or 80 years of age the growth is usually of the chronic ulcerating type, producing the ring stricture. In these cases the symptoms are almost entirely due to obstruction, which in the end generally becomes complete owing to the narrow lumen at the strictured part (often only transmitting a No. 10 catheter) becoming blocked by some undigested substance in the fæces.

When distension is absent a tumour is often present and in this way the disease is usually located in the younger class of patients; but after obstruction has once set in it is rare to be able to detect a lump and one must be guided in other ways in locating it. Probabilities are of no help. The sur[illegible] ause [illegible] In [illegible] ddle line should be the practice. The best aids to diagnosis are the capacity of the bowel below the stricture, the condition of the cæcum and colon as made out by percussion and palpation, and the evidence afforded by pain and peristalsis. *The patient is often quite conscious of the site of the stricture*, having many a time felt a colicky wave of peristalsis pass away at a particular spot with a gurgling sound as gas and liquid were forced through the stricture. And when the bowel is much hypertrophied one may see the peristaltic wave gather and run on until it comes to a stop at the stricture. The enema, too, is a great help when the disease is low down. As the result of experiment on the dead subject I believe the bowel will hold something like two pints with an obstruction in the sigmoid flexure, but in actual practice one finds that from half a pint to a pint is all that is tolerated, usually the former, and that it is returned at once without motion. In these circumstances the tumour is in the most favourable place for operation. When it is higher up large quantities of injection may be introduced and retained. The operator has then to be guided chiefly by palpation and percussion of the regions of the large bowel and if nothing definite can be made out a middle-line exploration should be undertaken.

When the tumour is located it must be freely exposed, and if suitable for removal the mesentery in connexion with the part involved is carefully divided so that the diseased coil of bowel may be brought out of the abdomen. The subsequent steps of the operation depend upon the mode of union to be attempted, and in regard to this I continue to differ strongly from those who consider primary end-to-end union by suture or button the proper course to adopt as a routine practice. That it is the neatest and most satisfactory to the surgeon when the patient lives I do not doubt; but it is certainly more dangerous without ultimately being at all more efficacious than when the ends of the bowel are brought out and the continuity of the canal is subsequently restored. When this is done it is a rare thing to lose a patient who is not at the time of the operation seriously depressed as the effect of several days' obstruction of the bowels. In this connexion I may as a surgeon warn my medical friends that a patient after ten days' obstruction in the lower bowel is in much worse case than his pulse and appearance seem to indicate. The surgeon is asked to perform colotomy in these circumstances with the assurance that the patient is in excellent condition. It is quite true that he is fit to bear the operation; but when he dies a few days later death should be ascribed to the absorption of toxins, which is the cause of it, and not to the operation which has had nothing to do with the unfortunate result.

In 1892 I commenced operating by bringing out the ends of the bowel and after ten years' experience am strongly confirmed in my opinion that it is the right thing to do. I know nothing against it except that the patient has the discomforts of an artificial anus for a few weeks and the course of the case is prolonged by about a month—small evils compared with the gravity of the disease and the risks of end-to-end union. It has been suggested that stricture might result from incomplete removal of the spur, but such has not proved to happen in any of my cases. After dividing the mesentery the subsequent steps of the operation are of the simplest. The tumour being well drawn out of the abdomen, the ascending and descending portions of the colon are made to lie side by side, like the barrels of a double-barrelled gun, in which relationship they are lightly sutured together for quite three inches inside the abdomen. Outside the abdomen a colotomy tube is ligatured into the upper end and a smaller tube into the lower end, when the diseased part is cut away, of course quite bloodlessly. A few fine sutures may be used to attach the bowel to the parietal peritoneum at the bottom of the wound, and if the incision has been long its ends are brought together with fishing-gut sutures.

In many cases the operation is very little more severe than colotomy. Five or six days later the tubes separate, and at the end of three weeks, as a rule, the carefully prepared spur may be clamped. I once had a warning that this should not be done too hastily. After complete obstruction the bowel is liable to be in a very septic and irritable condition, and so long as the spur feels thick and hard to the finger I believe it to be unwise to apply the clamp. As a rule it is supple throughout, and in these circumstances may be clamped at any time. One clamping is very likely to be insufficient, and if there is a considerable ridge still apparent at the bottom the clamp should be applied again. It need not be kept on each time until it comes away, as its work is thoroughly effected in 48 hours, when it is probably safer removed than left *in situ*. As soon as the spur is completely destroyed the artificial anus is closed. The entire operation has been completed in 24 days; but usually from six to eight weeks must be allowed for it.

In cases of malignant disease of the colon in which the mesenteric glands are involved I used to give a most depressing prognosis, but have now met with a few in which such a prognosis was not justified. About four years ago I removed a cancerous tumour of the sigmoid flexure, together with several enlarged glands in the attached portion of the mesentery. The glands were as large as Barcelona nuts, and I thought the case quite hopeless; nevertheless, she is now, four years after the operation, in excellent health and still continuing her vocation as a domestic nurse.

Two years ago I removed the cæcum and lower part of the ileum from a man, aged 38 years, for a soft malignant growth. The lump was of the size of a fist and several glands were enlarged, one measuring one and a half inches in diameter. Here, again, I gave a bad prognosis. He recovered well from the operation and a year later was in such excellent health that his medical friend, Dr. F. Heatherley, refused to countenance any longer a pessimistic outlook. He came to me and said, in effect, "Look here, you must do something for this fellow. He must not be condemned to die in this sort of way. How about the x rays?" Well, I do not think we have at present any information which warrants us to suppose that the x rays would influence the course of such a case, so I suggested that if the patient was willing to lie up for a month I would explore the abdomen, ascertain what the present condition was, and do what seemed to be best in his interests. This was decided on and one day, after quite half an hour's exploration, I succeeded in discovering and extracting one small gland of the size of a split pea which on microscopical examination showed no malignant change. Another year has passed and the patient is still as well as ever—so well, in fact, that he at once agreed to come here with Dr. Heatherley to show us that we know almost as little about the prognosis as about the treatment of cancer.

Liverpool.

CAN THE RESPIRABLE PRODUCTS OF HUMAN WASTE HINDER DEVELOPMENT AND LOWER VITALITY?

BY JOHN HARTLEY, F.R.C.S. ENG.,
HONORARY SURGEON TO THE DARLINGTON HOSPITAL; LATE SENIOR DEMONSTRATOR OF ANATOMY, MIDDLESEX HOSPITAL MEDICAL SCHOOL.

THE following premisses will scarcely be denied. 1. That the infinite precautions for the due excretion of waste products observable in the economy constitute *primâ-facie* evidence of the poisonous nature of such products and that any serious or prolonged interference with the functions of any one of the great channels of exit—lung, kidney, bowel, or skin—is invariably followed by death. 2. That the blood current forms the chief medium of dissemination for systemic poisons. 3. That poisoning by the lungs may be at least as rapid and effectual as that by the alimentary canal, as witness the action of the so-called general anæsthetics, of sulphuretted hydrogen, carbon monoxide, and the like. 4. That the common use of the term "insanitary" as applied to ill-drained, ill-ventilated, and crowded dwellings is evidence of a consensus of opinion that the air of such dwellings has a definite influence in lowering vitality. Probably none of the foregoing statements will be seriously questioned, but when one approaches the crux of the matter and asks why is an insanitary dwelling insanitary, one receives answers such as the following: "Absence of sunlight," "absence of ozone," "absence of oxygen," "presence of organisms," "overcrowding."

If one ventures to suggest that the volatile products of animal waste may constitute deadly toxins and that such may find a very direct road to the tissues through the lung, one is met by incredulity. I find no suggestion in medical literature that such a process may be common. Volumes, and most useful ones, have been written on the subject of poisoning through the alimentary canal, as well as larger, and perhaps less useful, volumes on diet and drink. Even the theory of auto-intoxication (apparently a kind of unreasonable tissue-cussedness) has been dragged into account for the phenomena of lowered vitality. A girl has pale cheeks, damp cold hands, feeble pulse, and poor appetite, and she keeps them in spite of our drugs. No organic disease is to be found. Is one to be content with a diagnosis of constitutional debility or even auto-intoxication? No doubt the former is true so far as it goes. The predisposing cause must be undoubtedly within the girl, but the determining cause, the active poison, as I believe, starts outside the girl and, I think, usually enters by the lung. Here one, of course, is met by the argument, "But all the rest of the household may keep well under precisely similar conditions." To this there is the obvious answer: a single glass of whisky will make some persons drunk; a dose of poison harmless to the many may be harmful to the few. Medical opinion seems to hover on the edge of this question in a curiously uncertain manner. Its discussion is rarely or never attempted. Yet if there is anything in the view that the volatile products of animal waste constitute a poison readily absorbable by the lung, one can scarcely conceive of any more important issue, and it is solely in the hope of provoking some discussion of the subject that I venture to air my own crude ideas.

If we trace the path of a soluble body in its passage from the alimentary canal to the tissues and compare it with that of a volatile toxin starting from the alveolus of the lung, we see that even at the start the former may be handicapped by the possible action of the digestive ferments, then, according to its nature, it must run the gauntlet either of the epithelial cell or of the capillary of the liver guarded by the hepatic cell, and lastly it must face the ordeal of the capillary of the lung before reaching the tissues. In the case of the volatile toxin approaching by the lung the only barriers between it and the blood are the thin cellular walls of the air cell and capillary specially designed for the transmission of gases. The poison enters just at the moment that the blood is undergoing its final purification previously to being distributed to the tissues. From the capillary of the lung to the capillary of the tissue the road is clear, all is main line and "la Grande Vitesse." There can be no doubt that the lung provides the royal route to the tissues. It is surely for this reason that we have long given up trying to drug our patients by the stomach before operating and now give our general anæsthetic by the lung. We choose a highly volatile toxin and in less than two minutes in skilful hands the patient is unconscious. The route then is emphatically "all right." If the inspired air contain sewer gas, or respiratory products, the blood is started from the lung *en route* for the tissues actually loaded with imported waste.

As to the *modus operandi* of the poison—if poison it be, one needs to go no further than the out-patient department of a large hospital; the well-remembered smell gives assurance that there is no lack of the volatile products of human waste. Most assistant physicians or surgeons will bear me out in the assertion that a long afternoon in a crowded and badly ventilated out-patient room is fatiguing; to some very exhausting. To the most enthusiastic even good cases seem to be a little less interesting, and even good students are a little less attentive, towards the end of the afternoon. The looker-on without duties to perform experiences the same fatigue. There can be no question but that the sense of fatigue both of body and mind is largely due in some way to the foul atmosphere. The greater the crowd and the fouler the atmosphere the greater the fatigue. I suppose it is still generally accepted that fatigue of muscle is coincident with accumulation of its waste and may be partially removed by lessening this accumulation—as by massage. It would seem that other people's waste is quite as capable of causing fatigue as our own. But besides the subjective sensation of fatigue objective changes are usually visible. The face becomes paler and a shade blue and pinched. If anyone doubts this statement let him contrast the aspect of the congregation of any fashionable church or chapel at the end of the service with that at the beginning. In most cases half an hour in the open air and a meal will remove the greater part of both objective and subjective effects. The conclusion is forced upon one that the condition is mainly circulatory.

Is this condition central or peripheral? Faintness, palpitation, and the like are relatively, though by no means actually, uncommon, and, as a rule, the chief inconvenience felt is fatigue. It is apparently the periphery that mainly suffers. Now putting aside the heart the arteriole is, so far as we know, the only portion of the blood-carrying tube the lumen of which is under the direct control of drugs; we can certainly dilate it at will either through the stomach or the lungs. We have, therefore, presumptive evidence that, granted the occurrence of pallor among persons temporarily exposed to an atmosphere largely fouled by human waste, contraction of the arteriole is the most probable determining factor. We urgently need the intervention of the test of scientific experiment to put this to the proof. We know that obstruction to arterial flow is a common cause of passive hyperæmia. Contraction of the arterioles and consequent dilatation of the venules would account for the pallor and blueness noted above; but, besides this, contraction of the arterioles means sluggish capillary flow, lessened supply of nutriment and oxygen to the tissue cell, and slower removal of waste—of waste, be it remembered, already reinforced by the foreign supply brought in from the lungs. The metabolism of the tissue cell thus starved and choked must be lessened and its vitality and functional activity must be impaired so long as the action of the poison continues.

For the sake of argument let it be conceded that some such action on the peripheral circulation may explain the undoubted effects of temporary exposure to an atmosphere highly charged with waste products and let us see whether such action, if indefinitely prolonged, might account for the condition of those who have habitually inhaled such an atmosphere. Turning, then, to the occupants of the out-patient waiting-room or to the population of the slum outside I think that we shall hardly be able to resist the conclusion that there are certain peculiarities in the aspect of these people which are far less evident in any gathering of country folk. The women and children of the out-patient room or the slum provide, perhaps, the most typical instances. The most casual observer will note that rosy cheeks are rare and that pallor is usual—a sallow or blue tinge being often combined with the pallor. Most of the women look older than their years; those above 30 years of age are either gaunt and haggard or flabbily fat and in the older ones pigmentation and coarseness of skin are almost universal. There is in many cases an appearance of inertness and lack of vitality as remarkable as it is difficult to describe. On closer examination feeble hearts and "inadequate" kidneys are found to be common. Among the children the muscular development is, as a rule, poor, especially as regards the lower limbs. Shapely, well-developed legs and feet are quite uncommon and a large proportion show signs of rickets. I hope that this description will be admitted to be fair. From the nature of their surroundings it can hardly be seriously questioned that the majority of these people habitually breathe air fouled by the volatile products of human waste. They are, I have good reason to believe, at least as well fed as the average of the country poor.

We know that induration from the growth of white fibrous tissue and pigmentation are the two most common changes brought about by repeated or prolonged passive hyperæmia. These older women show both changes in the coarsening and pigmentation of their skin to a marked degree. Most of them will tell us that they cannot walk fast or exert themselves much, that they are easily tired, and short of breath. And we can scarcely help admitting that lessened metabolism and resulting degeneration of protoplasm are the causes of the flabby muscles and feeble movement which are so common among them. In many of them the first heart sound at the apex is feeble, though there is usually no murmur, while there s strong ground for suspicion that degeneration has begun in the heart wall. The kidneys are probably "inadequate," in other words, fibrous, and fatty change is present in them.

> "The narrows measure the river's flow,"

and it seems difficult to avoid the conclusion that permanent narrowing of the lumen of the arteriole, causing as it must do shortage of arterial supply, sluggish capillary and venous current, and therefore slow removal of waste, must inevitably lessen the metabolism and eventually cause the destruction of the starved and waste-ridden tissue cell. And be it remembered, even the meagre supply of arterial blood thus delivered is not a pure one. It has been fouled already in the pulmonary capillary by the immigration of foreign waste. It so far resembles the blood in the descending aorta of the fœtus, distributed to the lower limbs with results known to every student.

I have spoken of permanent diminution of the lumen of the arteriole, for it seems justifiable to suppose that the muscle of its wall will be no more exempt from degeneration than other tissues and that fibrous tissue will gradually take its place. If this be true we have the condition of arterio-capillary fibrosis not as a result of kidney change but as sharing with the immigration of foreign waste the responsibility of its production. But not only do the narrows control the volume of the stream, they also occasion ponding, and this ponding is greater where the fall of the river is less. So the smaller the arteriole and the feebler the heart the greater will be the dilation of the venous system. There will be ponding in the lung, the splanchnic area, and the veins of the pelvis and lower limbs. All will admit that these stout, flabby women are peculiarly subject to bronchitis, to dyspepsia, to varicose veins, and the like.

It is not suggested for a moment that all these changes take place without the intervention of micro-organisms. One can hardly conceive of small-celled infiltration without their aid; but it is suggested that these changes are initiated by volatile toxins absorbed by the lung. As to the undeveloped lower limbs of the children, attention was called many years ago to the length and slenderness of the arteries supplying the cauda equina, and it was suggested that the feebleness of the lower limbs so often observed in fat flabby women might be due to ready interference with the circulation through these long slender arteries. If we suppose the arterioles at the periphery of these vessels to be contracted in children who are habitually exposed to a foul atmosphere we have a condition of circulation which must seriously affect the nutrition and development of nerve, muscle, and bone. There appears to be no reason why the metabolism of the blood-forming tissues should not suffer with the rest. Anæmia is certainly the rule.

Lastly, what happier hunting-ground for bacteria can be imagined than waste-ridden tissues with an impure and restricted arterial supply. The temperature chart of a child suffering from hectic fever due to unremoveable tuberculous disease undergoes an extraordinary change on the child being transferred from the hospital ward to the verandah outside. The hectic fever usually goes as if by magic, often in 24 hours. I can only imagine that, given restored arterial supply and absence of imported waste, the tissues are enabled to withstand even the combined assault of septic and tuberculous organisms. Every hoarding announces the recognition by the masses of our population of the need for improved development and increased vitality. "Frame food," "Force" food, "Phospherine," and countless other forms of profitable philanthropy in the shape of food and drugs are painfully obtrusive. What care we try to take, and very rightly, to prevent the admission of poison to the alimentary canal! How almost laughably anxious are many of us on the question of diet. The law very properly steps in to prevent the adulteration of our food and drink. Analysis fairly runs riot on behalf of our stomachs. But who cares for the purity of the air we breathe unless we happen to be tuberculous?

It is not many years since the House of Commons was gravely informed "against the stomach of its sense" that its air *must* be wholesome since but few pathogenic organisms could be found in it. We flood our rivers and pollute the sands of our health resorts with sewage. Patients not unfrequently tell us that seaside air is "too strong" for them. We ventilate our sewers into narrow streets, courts, and alleys at the road level, regardless of the close-set crowded dwellings so near at hand. As to our living- and sleeping-rooms we most of us ventilate them not at all in the sense of clearing out waste products. One is tempted to wonder if the ills usually ascribed to the high pressure of modern civilisation may not be more justly attributed to the high potentiality of the toxins given off by our crowded populations. This question must from its very nature be either utterly fatuous or of truly vital importance. If a negative cannot be returned to it without a shade of hesitation its discussion is obviously most urgently needed. Discussion, experiment, and research must come sooner or later. We may then get an answer to the query, Can the respirable products of human waste hinder development and lower vitality?

Darlington.

ICHTHYOL IN THE TREATMENT OF PULMONARY DISEASE.[1]

By JAMES BURNET, M.A., M.B., M.R.C.P. EDIN.,
CLINICAL TUTOR, EXTRAMURAL MEDICAL WARDS, ROYAL INFIRMARY, EDINBURGH.

EVER since I became acquainted with ichthyol this substance has had a special interest for me. The more I study it the more distinctly do I understand its therapeutic value and its indications in the treatment of disease. My earliest use of it was in gynæcological cases in the form of tampons, and the success achieved in this connexion encouraged me to make a thorough investigation into its composition. The result was that I turned my attention almost entirely to the internal administration of ichthyol, and more particularly I made a study of its use in affections of the respiratory tract. During the past two years I have devoted much time and attention to the subject and I shall now endeavour to place before you as clearly as I can the results of my observations.

It may be well at the outset to describe very briefly the substance under consideration, and I trust you will not consider me too pedantic in doing so. Ichthyol or ammonium ichthyolate, as it is more correctly termed, is a definite chemical compound. It is obtained by acting upon a crude mineral oil derived from a special variety of bituminous quartz[2] by destructive distillation. This oil is treated with strong sulphuric acid, the product thus obtained being ichthyo-sulphuric or sulpho-ichthyolic acid, a dibasic acid. This acid is in turn neutralised by ammonium and ichthyolate of ammonium or ichthyol is the result. Ichthyol itself is a thick liquid substance of dark brown colour. It has a characteristic taste and odour, the latter being due to the presence of a volatile oil. Ichthyol is readily soluble in water. The crude oil before being acted on by sulphuric acid has the following composition: carbon, 77·25 per cent.; sulphur, 10·72 per cent.; hydrogen, 10·72 per cent.; and nitrogen, 1·10 per cent. Ichthyol itself is usually stated to contain from 15 to 16 per cent. of sulphur.

So far as I have been able to gather, the first mention of ichthyol as a therapeutic agent was by Unna who described its action in certain skin conditions as far back as 1883. It certainly became known to the profession from its use in dermatological and in gynæcological affections. Its internal employment came later and was for some time much praised. At present it is held in high esteem as an external medicament, but I fear that its internal administration is not regarded very favourably by the majority of practitioners. I cannot help thinking that the cause of this is not far to seek. It has very often been given in altogether unsuitable cases and for too short a period, so that with but few exceptions those who have tried it as an internal remedy have failed to derive good results and hence they have unjustly condemned it. I hope to be able to show you that ichthyol is of much service in the treatment of suitable cases of pulmonary disease. I shall first of all present you with a statement of the nature of the cases in which I employed it, together with some account of the results obtained, and then I shall refer at some length to the *rationale* of its action when given internally.

The majority of cases in which I used ichthyol internally were those of pulmonary tuberculosis and consequently my remarks will have very special reference to its employment in this disease. At the same time I have had definite results from its use in two cases of bronchiectasis and also in some cases of bronchitis, acute as well as chronic. Much benefit has also resulted from its use in cases of pulmonary fibrosis of pure type, apart, that is, from secondary tuberculous infection. All my cases of pulmonary tuberculosis were of the ordinary slow, progressive, and chronic type. They were in number 13 and varied in age from 18 to 39 years. As regards sex, four were females, the rest being males. At the commencement of treatment the tubercle bacillus was present in the sputum of each and in some cases was very abundantly present. No other drug save ichthyol was prescribed in any of the cases and the hygienic environment was not always the best possible. All the patients were under my personal observation for at least six months, some of them even for a longer period, so that a definite statement can readily be given as to the benefits derived from this form of treatment. Of the 13 cases referred to 11 were distinctly improved. Only two failed, after prolonged treatment, to show any beneficial results. The two latter were both very advanced cases and in one both lungs were extensively involved. In the remarks that follow I shall therefore confine my attention entirely to the results obtained in the 11 successful cases and shall disregard the other two entirely. A summary of the results obtained at the end of each month may be put down as follows. At the end of the first month of treatment I found that in six of the cases the cough was less harassing, while the other five showed no marked improvement. At the end of the second month every one showed distinct improvement as regards cough, while in eight the expectoration was either appreciably less in amount or both less in amount and easier of expulsion. Only one of the cases showed absence of night-sweating, all the others still complained of it to a greater or less extent. By the end of the third month seven of the patients were so far improved that no night-sweating was to be noticed. At the end of the fourth month of treatment night-sweating was entirely absent in every case, while only a slight cough remained. The expectoration had now become very scanty in amount and that chiefly in the mornings. Its expulsion was now quite easy and caused no distress as it formerly had done. Towards the end of the fifth month all my cases showed a continued improvement and on auscultation I noted especially the absence of moist sounds, though on percussion dulness was still in evidence, but in some cases was not so extensive as it had been at the start. By the end of the sixth month every one had gained in weight to the extent of from three to seven pounds. Speaking generally, the younger the patient the greater was the gain in weight. The average increase in weight was 4·9 pounds, or somewhat less than one pound per month.

It is important to observe the sequence of events in the history of the patients' progress towards recovery as indicated in the foregoing statement. The first sign of improvement was in respect to the cough, always a troublesome symptom in these cases. In the majority marked improvement, so far as cough was concerned, showed itself by the end of the first month of treatment, while in every case before the end of the second month it was distinctly less harassing and troublesome. Whereas previously the patient had been kept awake from this cause, this disturbing element was entirely eliminated, and in consequence undisturbed *sleep was obtained.* With *lessening of the cough* came improvement in the expectoration, and that in two very definite directions. It became less in amount and also became less viscid and consequently easier of expulsion. In all my cases this was observed by the end of the third month, while in many a great improvement in the amount and nature of the expectoration was noted as early as the second month of treatment. No night-sweating was ever seen in any of the cases after the end of the fourth month and in some instances it was entirely absent before the end of the third month. Gain in weight was not, as a rule, observed until the patient had been under treatment for a considerable period, though two of the cases began to show an increase in weight about the end of the tenth week. At any rate, in six months' time all had gained in weight and put on flesh. In every case there was marked nutritional improvement and food was taken with greater relish than hitherto. Any gastric discomfort that had been present when the patients first came under treatment had entirely gone and altogether there was marked improvement in their general condition as well as in the pulmonary phenomena. Apart from gain in weight I cannot say that in my experience the younger the patient the earlier did improvement commence to show itself, nor, indeed, was the ultimate benefit greater in proportion to the youth of the patient. Age did not seem to count for much so far as treatment by ichthyol was concerned. More depended, I think, on the severity and extent of the pulmonary lesion and on the loss of nutrition that existed when the patient came under treatment. The graver the lesion and the greater the lack of nutrition the longer did ichthyol take to exert its beneficial influence.

---

[1] A paper read before the Therapeutical Society of London on Feb. 17th, 1903.

[2] A deposit of fossil fish found in the Tyrol Mountains.

Now I would not have any of you infer from my remarks that I claim to have cured any of my cases by administering ichthyol. Far from it, for no drug will, in my opinion, cure pulmonary tuberculosis. All that drugs can do in such cases is to arrest the disease, not to eradicate it. This I feel certain that ichthyol can and will do if properly administered. More must never be expected of it. I firmly believe that open-air treatment is the one and only hopeful mode of dealing with pulmonary tuberculosis, still I would have you bear in mind that at the present moment not all such cases can be sent straightway to a sanatorium. And this for two very cogent reasons: (1) because there are no immediate vacancies in many instances; and (2) because at the time the patients are probably not in a satisfactory condition to benefit by such treatment. With the first of these reasons we have nothing for the present to do. We certainly are in urgent need of more accommodation, but we can remedy the second defect. By placing such patients under a regimen of rest with, if practicable, daily massage and by administering ichthyol we may render them suitable for admission to a sanatorium.

But I now pass on to the consideration of two cases of bronchiectasis which I beneficially treated by means of ichthyol. In both cases the condition followed on chronic bronchitis. The most prominent symptoms were paroxysmal cough, with very abundant, fœtid expectoration. In one of the cases a history of slight hæmoptysis was obtained. When they came under treatment both patients showed considerable loss of flesh and had a remittent form of temperature. On percussion distinct dulness was obtained, with distant tubular breath sounds on auscultation, showing that the tubes were full of secretion; after a paroxysm of coughing and free expectoration the resonance became almost tympanitic, while the breathing was more markedly tubular and accompanied by coarse metallic râles. In cases of bronchiectasis I think one of the first essentials in the treatment is to obtain a regular expulsion of the fœtid material blocking up the tubes and poisoning the patient's blood. This I found ichthyol to accomplish in a very satisfactory manner. After a month's treatment the paroxysmal nature of the cough became less marked, while the percussion dulness grew less distinct. In three months the cough and expectoration were less troublesome, and the extremely fœtid character of the latter was scarcely noticeable. The patients were now gaining weight and were taking more nourishment. The temperature had also ceased to show its original remittent character. Dr. W. Ewart of St. George's Hospital has recorded[3] two interesting cases of bronchiectasis treated by postural exercises and ichthyol. The patients gained considerably in strength and in weight under this combined method of treatment. These, taken in connexion with the two cases which were under my care, go to prove the value of ichthyol in this very troublesome disease.

I should also like to refer to the use of ichthyol in the treatment of chronic pulmonary fibrosis as seen in stonemasons (i.e., stone-hewers). In such cases the chief symptoms are dyspnœa, cough with expectoration which is specially troublesome in the mornings, and gradual loss of nutrition. As a rule, so far as my experience goes, the tubercle bacillus sooner or later finds an entrance to the weakened pulmonary tissue, so that patients of this class seldom attain the age of 45 years. I have treated several of these cases for a time with ichthyol. In every case I found that the cough became less troublesome and the expectoration easier and less in amount. The general nutrition of the patients was improved and appetite, which was very poor in every case, gradually returned. Unfortunately, none of my cases admitted of careful and systematic treatment being carried out, as they could not be made to realise the importance of continuing the medicine. Still, from the experience I have had of these cases I feel bound to say that ichthyol is a most suitable remedy. Ichthyol has likewise proved itself of value in one or two cases of chronic bronchitis in which I have tried it, while in acute cases where the cough and expectoration were causing trouble ichthyol has stopped the paroxysms and caused the expectoration to become less difficult to expel. In pneumonia the cough is always more or less paroxysmal in character, while the expectoration at the height of the disease is very tenacious and viscid. Here, then, one would naturally find in ichthyol a suitable therapeutic agent, but it would be impossible, for various reasons, to administer a sufficient quantity even in capsule form to patients so acutely ill. Hence I have contented myself with studying its action during the resolution stage of this disease. I think I am right in stating that ichthyol is of value if administered after the temperature has been reduced, as it then seems to hasten resolution and to bring about a return of the lung to normal.

It may now be advantageous to say a few words regarding the dosage and mode of administration of ichthyol. Generally speaking, the amount given varied from eight to 20 grains four times per day. I always gave it in capsule form, each capsule containing four grains of ichthyol. As a rule, in every case I started with two capsules four times a day and then gradually increased the amount until five capsules were taken four times daily, this being the maximum limit. In other words, each patient got from 32 to 80 grains per day. This may seem a somewhat large amount, but it was tolerated in most cases when the drug was administered in the form of capsules. To some patients I found that the appearance of the capsule was somewhat repugnant, and after swallowing one they had considerable difficulty in taking a second, as the mere act of placing it in the mouth seemed reflexly to produce nausea. Apart from this I have never observed any nausea or sickness produced after ichthyol capsules were taken into the stomach, although some of the opponents of the drug state definitely that ichthyol is not tolerated by the stomach.

Dr. Heinrich Fraenkel in his treatment of pulmonary tuberculosis by means of ichthyol (of which a full account is published in the *American Journal of the Medical Sciences* for September, 1897) employed a solution containing equal parts of ichthyol and distilled water flavoured with oil of peppermint. He found that the odour and taste of this mixture caused nausea and even vomiting in sensitive individuals but never produced any true gastric irritation. If, however, gelatin capsules are prescribed, then, as already pointed out, no such phenomena are observed. Certainly, in my opinion, ichthyol does not in the slightest degree cause any irritation of the gastric mucous membrane, or if in a few anomalous cases it does produce slight inconvenience it is not nearly so great as that induced by creasote. I think anyone who has had any experience with both ichthyol and creasote will at once admit the truth of this assertion. I can quite readily understand trouble arising if ichthyol be given in solution and hence I would insist that in all cases the administration by means of capsules be selected. Sodium ichthyol may be substituted in this case. Firstly, as to the cause. The patient has aways lived near London and has never been abroad. The only possible source of infection seems to have been a pet dog which lives with the patient and which some few years ago was much troubled with tape-worm. Secondly, the course of the disease and the rupture of the cyst. That the true nature of the disease was not recognised before rupture of the cyst is hardly a matter for surprise, seeing that hydatid disease of the lung is rare and that there are several points in the medical history which obscured the clinical picture. The tuberculous disease of the ankle and the history of influenza and pleurisy seemed to furnish a sufficient explanation of the symptoms and physical signs. When did the cyst rupture? In most of the recorded instances of this occurrence there is a sudden gush of fluid through the air-tubes which threatens to suffocate or to drown the patient. No such escape of fluid occurred at any time in this case. Was the pleurisy diagnosed in November, 1901, really a collection of fluid which had escaped from the cyst into the pleural cavity? There are certain facts which lend support to such a supposition: (1) the absence of any fluid expelled from the mouth; (2) the fact, ascertained after the large pieces of membrane had been coughed up, that the patient had during a year or more occasionally coughed up small shreds of membrane suggesting rupture of the cyst some time ago; and (3) the feeling of something giving way within the chest whilst singing, followed by hæmoptysis. Both the hæmoptysis and the pleurisy may have been due to tuberculosis and the hydatid cyst in the lung may have had no connexion with these accidents. The condition of the apex of the right lung seemed to indicate the presence there of tuberculosis.

---

[3] THE LANCET, July 13th, 1901, p. 70.

The satisfactory result of the natural cure of the disease is also interesting. The physical signs before the patient left the hospital and on her subsequent visit to me indicated that a smooth-walled cavity containing air only was left and that this was contracting.

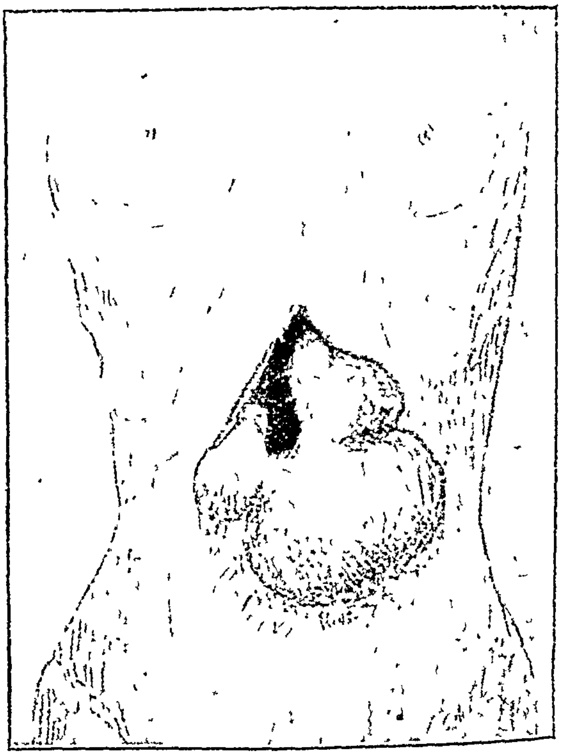
LEEDS GENERAL INFIRMARY.

A CASE OF TRIFID STOMACH.

(Under the care of Mr. B. G. A. MOYNIHAN.)

THE patient, a woman, aged 27 years, was sent to the Leeds General Infirmary by Mr. Arthur Knowles of Halifax. Nine years ago the patient, a thin, sallow-looking woman, began to suffer from pain after food and vomiting. The first "attack" came on quite suddenly when she was apparently in good health; the vomit was then copious and deeply tinged with blood. At repeated intervals since this there had been other "attacks" in all of which there had been vomiting, and on one or two occasions blood in small quantity had been ejected. The pain had been noticed after all foods, generally within an hour of a meal. All solids had been withheld for over 12 months on account of the pain which they caused. In her present condition she was constantly suffering from "indigestion." Even a drink of milk caused some pain, and every day or two there was an outbreak of severe vomiting. The fluid ejected was sour and at times very offensive. During the last four months there had been an increase in the symptoms and she had been losing weight rapidly. An examination of the abdomen was made; the stomach was inflated and subsequently washed out. On the following grounds a diagnosis of hour-glass stomach was made: 1. On washing out the stomach only 16 ounces were returned for every pint introduced. At the first washing five pints were used and four were returned. 2. An examination then revealed a succussion splash and "paradoxical dilatation." 3. On inflation there was a large increase in the subcostal tympany and the distension of the stomach in the epigastrium was observed much later than is the rule. 4. A loud, sizzling, forcing sound was heard over the left end of the stomach during this delayed distension of the epigastrium.

The abdomen was opened on Nov. 29th, 1902, and the stomach was exposed. An hour-glass stomach was at once recognised. There were two pouches with a constriction which just admitted the middle finger between them. The pyloric pouch was about equal in size to a small cocoanut; the pouch towards the cardia was of the size of a normal stomach. The stomach was then explored up towards the cardiac orifice, with the result that another constriction and another pouch were exposed. This constriction would only just admit the tip of the little finger. The pouch beyond it was rather bigger than the middle compartment of the stomach.



Semi diagrammatic representation of the trifid stomach.

The cardiac pouch, it may be noticed, is drawn smaller than it actually was, as most of it was not pulled outside the abdomen; the figure was drawn by Mr. W. O. Mayo who was administering the anæsthetic. There were thus three pouches in the stomach separated by two constrictions Both constrictions showed considerable induration and some puckering, the result of old ulceration. To remedy the defects the first pouch was united to the second by the operation of gastro gastrostomy, an opening being made that would admit three fingers easily; the second pouch was united to the jejunum by a posterior gastro-enterostomy; and the constriction between the second and third pouches was well dilated with the fingers. The patient's recovery was without incident. She left the infirmary on the twenty-third day after the operation and had been taking ordinary diet for a few days before this

Remarks by Mr. MOYNIHAN.—This case is the only one recorded in which a trifid stomach, the result of the contraction of old ulcers in the stomach, has been found Clinically the case was one of inveterate dyspepsia with recent increase in the severity of the symptoms and with recent rapid loss of weight. A diagnosis of hour glass stomach was made and at the beginning of the operation it was supposed that this diagnosis was confirmed. But I never begin any operation upon the stomach until I have exposed the whole viscus and until I have examined and handled the organ quite up to the cardiac orifice. It is only by acting upon such a resolve that one avoids the error of uniting the pyloric pouch of an hour glass stomach to the jejunum Hour-glass stomach is more common than is supposed. Including this case I have operated upon 16 patients affected with this disease; in 14 the constriction was due to chronic ulceration and in two to malignant disease. Mr. Knowles, who kindly sent the patient to me, writes to me that it "was owing to reading the previous recorded cases of yours in THE LANCET[1] that I was led to press the patient to come to you for operation. I felt sure she had an 'hour-glass stomach.'"

---

[1] THE LANCET, April 27th, 1901, p. 1190.

Reviews and Notices of Books.

The Diseases of Infancy and Childhood. By HENRY KOPLIK, M.D. London: Henry Kimpton. 1903. Pp. 675 Illustrated. Price 21*s*

THIS new text-book on the diseases of infancy and childhood will be read with considerable interest in this country where Dr. Henry Koplik's name is so well known in connexion with what is very generally regarded as the pathognomonic sign of measles Dr. Koplik, though, perhaps, most famous for his investigations in that branch of medicine which is concerned with specific fevers, has had a very wide experience in the general diseases of infancy and childhood, but heretofore he has not attempted to give others the benefit of his experience by writing a work which covers the whole ground of the medical diseases which affect young people. This book must be regarded in every sense as a complete and up-to-date treatise of the diseases of children. The space allocated to the various subjects is equably and judiciously apportioned and the chapters on the special infective diseases, which, owing to the author's special knowledge, might reasonably have received conspicuous attention, are neither unduly prominent nor disproportionately long. The mere fact that these chapters conform in all respects to the systematic design of the whole proves that Dr. Koplik's object in writing this book was to prepare a work which would be of general use to students and practitioners. The author's prefatory *apologia* for the publication of this recent addition to the already extensive library of books which deal with the same subject is therefore unnecessary, but when he adds that "the literature in the domain of pediatrics is largely inaccessible to those conversant with the English language alone" we may point out that there have recently been published at least four new editions of works which have brought the literature of the subject as satisfactorily up to date as does the volume under review. The value of Dr. Koplik's work in our opinion does not rest on its merits as a compilation but on its just claim as a document of personal observation and original and independent mind.

The first chapter, which describes the general examination of the patient, his development, and management, deals with questions in pediatrics which from a critical standpoint give better indications of an author's powers of observation and capacity for literary description than do the more or less routine accounts of the less definite diseases which are common to all periods of life. It is one thing to know a subject and another matter altogether to write about it intelligently and intelligibly, indeed many an able clinician has come signally to grief when he has laid down his stethoscope and has taken up his pen. The author describes in considerable detail the management of breast feeding and his account of the medical examination and selection of wet nurses will be found invaluable to medical men on whom this responsibility devolves. With regard to the general management of infants Dr. Koplik is clearly no advocate of the "hardening" system. His directions for the temperature at which nurseries should be kept and baths given would assuredly absolve him from the reproach of applying Spartan methods. It might perhaps be urged with some degree of justification that however necessary the measures which Dr. Koplik suggests might be in the case of genuinely delicate infants, if applied in the case of infants who are initially robust there might be some risk of the latter developing into individuals for whom this hot-house system might be urgently required. This, however, is a matter with regard to which mothers and nurses will continue to exercise their own judgment in spite of Dr. Koplik and in spite of other authorities who do not agree with him. With regard to the artificial feeding of infants it is almost refreshing to find that the author has no strong views in favour of any particular system, and although he recommends the application of the percentage method in the home modification of milk he is no advocate of the ultra refinements of which the method, according to other American authors, is apparently capable. Indeed, of so little importance does the percentage composition of different varieties of milk appear to be in the author's estimation that he makes the statement that asses' milk has a composition which is nearly identical with that of woman's.

Turning to the chapter which describes the specific infectious diseases it is impossible to avoid being impressed by the consummate and masterly skill with which this part of the work is handled; it would be difficult to find a better account of the efflorescences of the various rashes both on the skin and on the mucous membranes. Speaking of the rashes on mucous surfaces or enanthemata, as he calls them, which from time to time have been described as complicating the course of many of the specific fevers and which have been adduced as evidence against the specific character of the so called Koplik's spots, the author says: "None of these are constant or characteristic of rotheln, but all are found in other affections. The buccal mucous membrane, however, is absolutely free from eruption of any kind and in this fact we have a valuable diagnostic distinction between this disease (German measles) and measles." Interpolated between pages 148 and 149 is the now famous coloured plate of Koplik's spots in various stages of their efflorescence, and for purposes of differential diagnosis a similar illustration of aphthous stomatitis, an inflammatory condition of the mucous membrane sometimes confounded with the author's pathognomonic spots.

It is scarcely necessary to follow Dr. Koplik in his description of many of the general diseases which are incidental to childhood. In his arrangement and classification he has adhered to the best traditions of American authors. No attempt has been made to discuss controversial views or obscure pathological problems. Throughout this book we have a plain, unvarnished description of the symptoms and treatment of the ordinary complaints met with in practice But as we have already mentioned, it is for the individual manner in which Dr. Koplik regards the manifestation of disease in children and for the practical hints on treatment which his personal experience enables him to supply that this book will be chiefly valued.

Die Krankheiten der Warmen Lander: ein Handbuch fur Aerzte. (The Diseases of Warm Countries: a Handbook for Physicians) Von Dr B. SCHEUBE, früherem Professor an der Medizinschule in Kioto. Third revised edition. Jena: Gustav Fischer. 1903. Pp. v. + 789 Plates and Maps. Price, paper cover, 16 marks; bound, 18 marks.

THE third edition of this truly encyclopædic work on Tropical Medicine lies before us for review. That it has been appreciated by those for whom it is intended as a guide is shown by the rapidity with which successive editions have been published, the second appearing in 1900, and this, the third, in 1903. It is impossible in the space at our command to do full justice to the work in its entirety, but a glance at it suffices to show that this new edition is thoroughly up to date, and to those who are able to read German it will be found to constitute *par excellence* the standard text book on tropical diseases. There is only missing the description of one disease which we should have liked to be included—viz., heat stroke—whilst cholera is dismissed in but a few words. New sections on Filaria Volvulus, Rhabdonema Strongyloides, Leeches, Ground Itch, Veldt Sores, and Chappa are added. In the chapter on in this case. Firstly, as to the cause. The patient has aways lived near London and has never been abroad. The only possible source of infection seems to have been a pet dog which lives with the patient and which some few years ago was much troubled with tape-worm. Secondly, the course of the disease and the rupture of the cyst. That the true nature of the disease was not recognised before rupture of the cyst is hardly a matter for surprise, seeing that hydatid disease of the lung is rare and that there are several points in the medical history which obscured the clinical picture. The tuberculous disease of the ankle and the history of influenza and pleurisy seemed to furnish a sufficient explanation of the symptoms and physical signs. When did the cyst rupture? In most of the recorded instances of this occurrence there is a sudden gush of fluid through the air-tubes which threatens to suffocate or to drown the patient. No such escape of fluid occurred at any time in this case. Was the pleurisy diagnosed in November, 1901, really a collection of fluid which had escaped from the cyst into the pleural cavity? There are certain facts which lend support to such a supposition: (1) the absence of any fluid expelled from the mouth; (2) the fact, ascertained after the large pieces of membrane had been coughed up, that the patient had during a year or more occasionally coughed up small shreds of membrane suggesting rupture of the cyst some time ago; and (3) the feeling of something giving way within the chest whilst singing, followed by hæmoptysis. Both the hæmoptysis and the pleurisy may have been due to tuberculosis and the hydatid cyst in the lung may have had no connexion with these accidents. The condition of the apex of the right lung seemed to indicate the presence there of tuberculosis.

The satisfactory result of the natural cure of the disease is also interesting. The physical signs before the patient left the hospital and on her subsequent visit to me indicated that a smooth-walled cavity containing air only was left and that this was contracting.

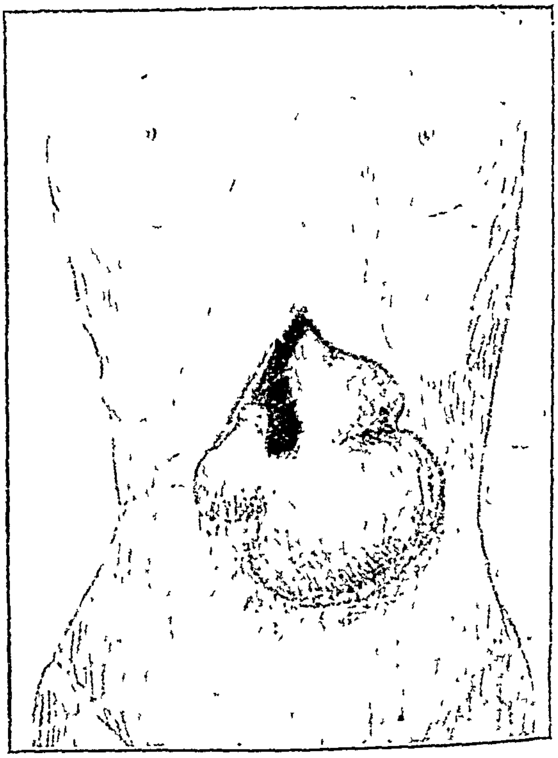
LEEDS GENERAL INFIRMARY.

A CASE OF TRIFID STOMACH.

(Under the care of Mr. B. G. A. MOYNIHAN.)

THE patient, a woman, aged 27 years, was sent to the Leeds General Infirmary by Mr. Arthur Knowles of Halifax. Nine years ago the patient, a thin, sallow-looking woman, began to suffer from pain after food and vomiting. The first "attack" came on quite suddenly when she was apparently in good health; the vomit was then copious and deeply tinged with blood. At repeated intervals since this there had been other "attacks" in all of which there had been vomiting, and on one or two occasions blood in small quantity had been ejected. The pain had been noticed after all foods, generally within an hour of a meal. All solids had been withheld for over 12 months on account of the pain which they caused. In her present condition she was constantly suffering from "indigestion." Even a drink of milk caused some pain, and every day or two there was an outbreak of severe vomiting. The fluid ejected was sour and at times very offensive. During the last four months there had been an increase in the symptoms and she had been losing weight rapidly. An examination of the abdomen was made; the stomach was inflated and subsequently washed out. On the following grounds a diagnosis of hour-glass stomach was made: 1. On washing out the stomach only 16 ounces were returned for every pint introduced. At the first washing five pints were used and four were returned. 2 An examination then revealed a succussion splash and "paradoxical dilatation." 3. On inflation there was a large increase in the subcostal tympany and the distension of the stomach in the epigastrium was observed much later than is the rule. 4. A loud, sizzling, forcing sound was heard over the left end of the stomach during this delayed distension of the epigastrium

The abdomen was opened on Nov. 29th, 1902, and the stomach was exposed. An hour-glass stomach was at once recognised. There were two pouches with a constriction which just admitted the middle finger between them. The pyloric pouch was about equal in size to a small cocoanut; the pouch towards the cardia was of the size of a normal stomach. The stomach was then explored up towards the cardiac orifice, with the result that another constriction and another pouch were exposed. This constriction would only just admit the tip of the little finger. The pouch beyond it was rather bigger than the middle compartment of the stomach.



Semi diagrammatic representation of the trifid stomach.

The cardiac pouch, it may be noticed, is drawn smaller than it actually was, as most of it was not pulled outside the abdomen; the figure was drawn by Mr. W. O. Mayo who was administering the anæsthetic. There were thus three pouches in the stomach separated by two constrictions Both constrictions showed considerable induration and some puckering, the result of old ulceration. To remedy the defects the first pouch was united to the second by the operation of gastro gastrostomy, an opening being made that would admit three fingers easily; the second pouch was united to the jejunum by a posterior gastro-enterostomy; and the constriction between the second and third pouches was well dilated with the fingers. The patient's recovery was without incident. She left the infirmary on the twenty-third day after the operation and had been taking ordinary diet for a few days before this

Remarks by Mr. MOYNIHAN.—This case is the only one recorded in which a trifid stomach, the result of the contraction of old ulcers in the stomach, has been found Clinically the case was one of inveterate dyspepsia with recent increase in the severity of the symptoms and with recent rapid loss of weight. A diagnosis of hour-glass stomach was made and at the beginning of the operation it was supposed that this diagnosis was confirmed. But I never begin any operation upon the stomach until I have exposed the whole viscus and until I have examined and handled the organ quite up to the cardiac orifice. It is only by acting upon such a resolve that one avoids the error of uniting the pyloric pouch of an hour-glass stomach to the jejunum Hour-glass stomach is more common than is supposed. Including this case I have operated upon 16 patients affected with this disease; in 14 the constriction was due to chronic ulceration and in two to malignant disease. Mr. Knowles, who kindly sent the patient to me, writes to me that it "was owing to reading the previous recorded cases of yours in THE LANCET[1] that I was led to press the patient to come to you for operation. I felt sure she had an 'hour-glass stomach.'"

---

[1] THE LANCET, April 27th, 1901, p. 1190.

American Armoury and Blue-book. Edited by JOHN MATTHEWS, Member of the Pennsylvania Historical Society. London: Published by the Author, 93, Chancery-lane, W.C. 1903. Pp. 558. Price £2 2s. net.—The idea of an American Armoury and Blue-book cannot fail to strike accurate-minded people as odd. American civilisation dates from the time when armoury and heraldry had begun to lose all their uses and much of their significance. Again, the men who have been in the forefront of the development of the Republic of the United States trace, and used to take some pride in tracing, their origins from those classes in the old world who did not happen to be bearers of arms. This, at any rate, was the case with Americans of British origin save in the colonies of Maryland and Virginia. The settlers under the Plymouth Company and the London Company, and the historic Pilgrim Fathers certainly did not comprise many people with the right to use arms, and we do not believe that the Dutch and Swedish settlers were a whit more aristocratic in their origin. By what process certain American families have arrived at thinking that they possess the arms figured in the American Armoury and Blue-book we cannot, therefore, guess, but some of the pictures are very funny and the letterpress is in keeping with them.

Where Shall I Send my Patient? Published by the Association of Medical Men Receiving Resident Patients. 1903. Pp. 279.—This is a guide for medical practitioners who want assistance with regard to finding convalescent homes, asylums, nursing institutions, or sanatoriums for their patients. The book is published by an association of medical men who receive resident patients, which was formed some three or four years ago with the object of providing homes for persons of good social position suffering from any kind of ailment requiring the constant supervision of a medical practitioner as well as the comforts of home life. 126 medical men give details of the facilities which they have for the reception of resident patients and of their abilities to look after them. The names of the medical men are not given but a number and a corresponding *non de plume* are published so that communications can be made through the honorary secretary of the association, whose address is Bodorgan Manor, Bournemouth. The idea of medical men coöperating in this way to make known to their medical colleagues their desire to receive a patient is a very sensible one, for it is particularly well known to us in this office that those who have facilities for receiving patients do not get quickly into touch with those who desire to find homes for patients.

The Charaka Club. Vol. I. New York; William Wood and Co. 1902. Pp. 97.—The Charaka Club is a small literary club organised some few years ago in New York by medical men interested in the artistic and historical aspects of medicine, the idea being to find recreation in meeting together to read and to discuss papers. The first volume of the proceedings of the club contains a selection of the papers that have been read and show the association to be inspired with something of the same blended spirit of seriousness and banter that used to distinguish the now defunct Rabelais Club. The essay entitled "The Evil spoken of Physicians," by Charles L. Dana, brings together some of the many bitter criticisms of our profession to which numerous great readers and thinkers have committed themselves since the compiler of the Chronicles recorded that Asa "sought not to the Lord, but to the physicians; and Asa slept with his fathers." Mr. Dana has brought together similar examples from Bacon, Pascal, Balzac, Molière, Arnold, Byron, Montaigne, and others, to show how numerous are the satirical comments of literary men upon physicians and surgeons. Another interesting paper is from the pen of the same author and describes at some length the Cult of Æsculapius. The story of the man who wished to hypnotise, by Mr. Joseph Collins, is witty if a little nasty.

MEDICINE AND THE LAW.

The Price of a Medical Practice.

IN the King's Bench Division an action was concluded on July 30th between Mr. E. K. Houchin, of Ilford, Essex, and Mr. John Marshall, of Stepney, in which Mr. Houchin sued Mr. Marshall for £987, balance of the purchase price of £2000 which the latter had agreed to pay for the plaintiff's practice in Stepney. The defendant admitted the agreement to purchase at the price named and that the balance was still unpaid, but pleaded in defence that he had been induced to purchase by the plaintiff's misrepresentations as to the value of the practice. These, he alleged, consisted principally in the statement that the average annual receipts of the practice exceeded £2000 a year and also that Stepney was a good and improving district. With regard to the condition of Stepney he contended that owing to the influx of poor alien immigrants the district was becoming worse instead of better, and he denied that the annual receipts of the practice were as stated to him. On behalf of the plaintiff it was contended that at the time when the statements were made they were perfectly true and that the alleged deterioration of Stepney as a locality for medical practice had not begun to take place in 1898 when the practice was sold. After the plaintiff and the defendant had given evidence it was announced by counsel that a settlement had been arrived at whereby Mr. Houchin made a substantial allowance to Mr. Marshall, and Mr. Marshall withdrew all imputations of fraudulent misrepresentation. The price paid for a medical practice is a matter with regard to which dispute may easily arise afterwards if every precaution is not taken by both parties at the time of purchase. The best way to avoid all difficulties is to rely solely upon carefully kept books in giving and in accepting information as to the value. The accounts of a medical practice are not complicated and do not require special skill to understand them if they are kept in a clear form. Opinions as to the future development of a district are opinions only, with regard to which a purchaser should seek such information as may enable him to test their accuracy for himself. It will be observed in the published reports of the case referred to that the judge and the jury both expressed their approval of the course adopted by the parties in arriving at an amicable settlement, clearly holding the view that the dispute was an unfortunate one, in which mistakes had been made involving no blame to either party.

An Action to recover Fees.

At the Liverpool Assizes, on July 29th, an action was heard in which Mr. J. D. Crawford of that city sought to recover a sum of £835 for medical attendance upon a deceased hotel-proprietor named Westmoreland and his wife. The executors of the deceased defended the action on the ground that the fees were excessive. Evidence was given that the deceased was a gentleman of considerable means, who left an estate of the value of £70,000 and who during his lifetime insisted upon very frequent medical attendance and advice. Medical practitioners other than the plaintiff gave evidence as to the reasonableness of the fees charged and the jury eventually found a verdict for the plaintiff for £699, for which judgment was accordingly entered. There can be no doubt that a medical practitioner is placed in a position of some difficulty by those patients who desire to see him more often than is strictly necessary in the interests of their health and who would at once transfer themselves to some other medical man should the first show any disinclination to humour a whim which they are ready and able to pay for. At the same time, an executor confronted with an account for medical attendance of more than £800 may quite reasonably examine it very carefully having regard to the responsibility of his position. On the other hand, in the course of the case referred to it was shown that Mr. Crawford had been paid without question £1030 for attendance upon Mrs. Westmoreland. The accounts in both instances are large and give rise to the question whether it is not more prudent to endeavour to obtain periodical payment than to risk having to bring an action for amounts so considerable. To prove attendances represented by £1000 to the satisfaction of a judge and a jury is in itself a matter which may not be easy.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT SWANSEA.

THE seventy-first annual meeting of the British Medical Association, which has now come to an end, was quite successful. The attendance of medical men was not so large as usual, partly, perhaps, on account of the remoteness of the place of meeting from any well-known seat of learning. This meeting was a jubilee visit to Swansea as the Association met there in 1853, a fact which had escaped our attention.

First impressions of Swansea were not lively, but the courtesy and kindness of everyone brightened those impressions. Those members of the Association who arrived at Swansea on July 27th approached the town through a thick murky canopy of smoke rendered especially disagreeable by heavy rain. Despite the elements, however, the streets were encumbered with a multitude assembled to do honour to their countryman, the Welsh Volunteer who had gained the King's Prize at Bisley and was returning to Swansea on that day. Visitors to Swansea had been warned not to expect anything beautiful in the place and the narrow monotonous streets in which no trace of architectural ambition appears looked their worst in the downpour.

Each member of the Association was presented by the Mayor and corporation of Swansea with a souvenir of the meeting in the form of an official album issued under the combined auspices of the corporations of Swansea and Aberavon, the Swansea Harbour Trust and the Chamber of Commerce. The book illustrates the furnaces, the docks, and the shipping of the place as well as some of the many charming spots in its neighbourhood. The publisher of the souvenir hopes that it may "form a factor in the material advancement and prosperity of Swansea" and we indorse the hope. Swansea cordially welcomed its medical visitors and they cannot fail to have carried away a kindly recollection of the town as well as a pleasant memory of the beauties of the environment.

In the annual report of the Association it is stated that the council has authorised the general secretary, when sending out the notices for the annual subscriptions, to intimate that he will also receive donations on behalf of the British Medical Benevolent Fund and the Royal Medical Benevolent College. It is gratifying to learn that these excellent charities have received as a result about £600 up to the end of March. It is quite easy to understand that the innovation may become a very useful one, seeing that members when writing their cheques for their annual subscriptions can without additional labour add their further donations on the same cheque.

The annual dinner of the British Medical Association at the meeting at Swansea was held on July 30th at the Albert Hall, Swansea, with the President of the Association, Dr. T. D. Griffiths, in the chair. Among those present were the Mayor of Swansea, Mr. Griffith Thomas, Mr. Andrew Clark, chairman of the council of the Association, Mr. D. A. Thomas, K.C., M.P., Dr. G. B. Ferguson, Surgeon-General G. J. H. Evatt, R.A.M.C., Sir A. Morris, Mr. H. E. Juler, Professor D. J. Hamilton, Sir J. Tyler, Mr. W. Whitehead, Dr. W. Collier, Dr. F. T. Roberts, Mr. A. W. Mayo Robson, Professor J. G. Adami, Professor H. Senator, Professor T. Glück, Mr. W. Arbuthnot Lane, Dr Dawson Williams, Dr. S. Woodcock, and Inspector-General H. C. Woods, R N. After the usual loyal toasts had been duly honoured Dr. Collier proposed, and Inspector-General Woods responded to, the toast of "The Navy, Army, and Reserve Forces." Mr. Thomas then proposed the toast of "The British Medical Association," which was acknowledged by Mr. Andrew Clark who took the opportunity of thanking the people of Swansea for the hospitable way in which they had entertained the members of the Association. Dr. Woodcock, in a witty and well-delivered speech, gave the toast of "The Swansea Corporation and Harbour Trust," which was replied to by the Mayor of Swansea. Dr. Roberts submitted the toast of "The President" and after this had been suitably replied to Mr. H. T. Thompson proposed the toast of "Our Guests and Friends from over the Seas." The hour being very late Professor Senator and Professor Adami briefly responded. In the course of the evening Dr. Arthur G. Haydon rendered two violin solos which met with an enthusiastic reception.

The council of the British Medical Association, at a meeting held on July 29th, resolved that a committee should be appointed to consider whether the general or the individual medical defence of its members shall be undertaken by the British Medical Association. If the committee report in favour of the Association undertaking medical defence of its members a scheme will be attached to the report according to which, in the opinion of the committee, the Association could safely and efficiently execute the work of medical defence. This is a very important question for the British Medical Association and one upon which a definite opinion should soon be arrived at, seeing how long proposals for the undertaking by the Association of defence work have been in the air.

The members of the Continental Anglo-American Medical Society lunched together at the Hôtel Métropole on July 30th in Swansea. The chairman was Dr. A. J. Freeman (San Remo). Mr. Edmund Owen gave the toast of "The Society" which was suitably acknowledged by Dr. F. M. Sandwith (Cairo). The health of the guests was submitted by Dr. Michael Foster, which was replied to by Dr. Frederick Roberts. Among those present besides the speakers named were Dr. Griffiths, Mr. Whitehead, Mr. Arbuthnot Lane, Sir Patrick Manson, Mr. F. Burghard, Professor Senator (Berlin), Professor Adami (Montreal), Dr. R. Ledermann (Berlin), Dr. Dawson Williams, Dr. L. N. Robinson (Paris), Dr. D. W. Samways (Mentone), Dr. H D. Rolleston, Dr. Ward Cousins, Dr. I. H. Cameron (Toronto), Dr. H. E. L. Canney (Assouan), and Mr. C. D. Marshall. The proceedings were not continued so long as usual because the Address in Surgery by Mr. Mayo Robson was delivered in the afternoon on the day on which this luncheon was held, but the function was nevertheless a complete success and those present looked forward to meeting again in Paris in October, 1904, at the International Congress on Tuberculosis.

THE SECTIONS.

MEDICINE.

THURSDAY, JULY 30TH.

Dr. H. D. ROLLESTON (London) introduced a discussion on

The Treatment of Gastric Ulcer.

Gastric ulcer had formed the subject of discussion before this section in 1900 when Dr. J. F. Payne opened the proceedings by a paper on the Problems of Gastric Ulcer which included the more restricted subject of its medical treatment chosen for consideration that day. In the following year Mr. H. G. Barling in the surgical section dealt fully with the treatment of gastric ulcer by gastro-jejunostomy. On the present occasion they were mainly concerned with the medical treatment of gastric ulcer. In the acute stage of an ordinary clinical case of gastric ulcer in a young woman, with localised tenderness, vomiting, and pain, the principle of absolute physiological rest, though universally accepted, was not so consistently carried out. While most medical men cut off all food by the mouth some allowed water, sips of water (hot or cold), or ice by the mouth to relieve thirst. Probably this depended in part on the erroneous belief that water was quietly absorbed by the mucous membrane of the stomach. As a matter of fact, water taken into the stomach was only absorbed in the intestine and had first to be expelled from the stomach by peristaltic action. In this way not only was healing delayed but a gastric ulcer might be so disturbed that severe hæmorrhage was induced. Dr. Rolleston had seen hæmatemesis set up when water was first allowed by the mouth five days after a previous hæmatemesis and when deep tenderness had disappeared. The better practice was to forbid any water by the mouth and to rely on rectal injections of from 10 to 20 ounces of water given slowly four or more times a day. The mouth should be kept as clean as possible by water or a mouth wash, such as Listerine. Reference was made to the occasional occurrence of parotitis as a complication in rectally fed patients. Mr. B. N. Tebbs had found from an analysis of the cases at St. George's Hospital that parotitis was more frequently a sequel of gastric ulcer than of other abdominal diseases, such as appendicitis, that the patients attacked were all on nutrient enemata, and that the routine use of antiseptic mouth washes did not protect against the incidence of parotitis. The latter point was of interest as it militated against the view that there was an ascending infection of Stensen's ducts from the mouth. The proteids of nutrient enemata should, of course, always be peptonised and the enemata should contain eggs and a sufficiency of salt, in addition to the ordinary constituents such as milk, beef-tea, and sugar, and might be given every four or six hours. The irritability of the rectum should be guarded against by washing out the bowel daily. It was, however, a question of considerable interest whether nutrient enemata were necessary during the period—usually from one to two weeks—in which no food was given by the mouth. It was somewhat surprising how well patients bore complete starvation when plenty of water was given by the bowel, and it had been epigrammatically said that nutrient enemata satisfied the minds rather than the bodies of the patients. As a result of careful chemical analyses of enemata, urine, and fæces in cases on exclusive rectal feeding Edsall and Miller[1] had concluded that in exceptional cases rectal feeding provided enough food to prevent tissue loss, but even then only maintained the patient in a condition of decided subnutrition. More efficient nutrient enemata could be given in a semi-solid form as advised by Leube, and Grünbaum[2] had advocated ox serum in rectal alimentation in combination with starch and glucose as a satisfactory method of supplying the necessary amount of caloric energy to the body and of minimising loss of weight. Attempts to bring about a cure and to prevent a relapse might be directed (1) to improving the general health and removing any underlying cause, such as chlorosis, syphilis, or oral sepsis; or (2) to the purely local treatment of the ulcer. In the mild cases commonly recognised as gastric ulcer in young women there was no doubt that as soon as gastric irritation had subsided iron was a most valuable remedy and should be taken to prevent a relapse in the same manner as in chlorosis. In the more chronic gastric ulcers usually seen in men after 30 years of age iodide of potassium should be tried, as a certain percentage of these ulcers were syphilitic in origin. Cautiously washing out the stomach with water or mild antiseptic solutions or running in a large amount of bismuth so as to get the local soothing effect of bismuth on the surface of the ulcer were curative measures sometimes employed. "Erosion" of the gastric mucous membrane had been treated by an intragastric spray of nitrate of silver (1 or 2 per cent).[3] In considering the medical treatment of gastric ulcer Dr. Rolleston said that the occurrence of vomiting indicated that absolute physiological rest should be given to the stomach and that nothing except drugs like opium, bismuth, and hydrocyanic acid should be given by the mouth. In some instances it appeared that the vomiting was reflex, due to the irritation of rectal injections, because it ceased on cautiously administering liquid food by the mouth and omitting rectal feeding. In a few cases the cause was probably oral sepsis and the swallowing of pus and micro-organisms, as shown by the fact that removal of bad teeth cured this symptom in two instances and improvement followed attention to the teeth in others. It was suggested that in some cases vomiting depended on the administration of common salt, which was given with eggs to increase absorption of the nutrient enemata. It was impossible and indeed unnecessary to enter fully into the treatment of hæmatemesis. Absolute rest, assisted by morphia hypodermically to quiet anxiety, was essential. Patients should not be allowed to suck ice. When hæmatemesis recurred or there were signs of continued though concealed hæmorrhage the administration of Ruspini's styptic or of adrenalin by the mouth for their purely local action on the bleeding spot and a rectal injection of a drachm of chloride of calcium, in order to increase the coagulability of the blood, might be given with advantage. Turning to the indications for surgical treatment, apart from perforation the only acute complication which required operative interference was repeated hæmorrhages which did not yield to medical treatment and were manifestly endangering life. Repeated hæmorrhages might be due (1) to an ordinary gastric ulcer with an exposed and ulcerated artery in its floor, or (2) to "exulceratio simplex" of M. Dieulafoy, or "pore-like erosions" of the gastric arterioles of Dr. J. Lindsay Steven. In chronic gastric ulcer operative interference was justified in the following circumstances: (1) When there was constant pain which was not relieved by medical measures and leading to a condition of chronic invalidism. This might be due to adhesions or might depend on the presence of a large gastric ulcer. 2. When there was intermittent or permanent pyloric obstruction. The first might be due to spasm set up by a chronic ulcer near the pylorus and was met by gastro-enterostomy; the second was due to cicatricial contraction. 3. When hæmatemesis recurred in spite of medical treatment.

Dr. T. D. GRIFFITHS (Swansea) remarked that mechanical and physiological rest of the stomach was the principal object of treatment and this was best carried out by rectal feeding. He emphasised the state of the mouth and tongue as a guide to the amount and kind of nutrient enemata. The bowel need not be washed out every day—every three or four days was sufficient. In early cases ten days of this treatment was sufficient and then the diet must be gradually increased as in the diet of infancy. From four to six ounces of predigested food might at first be given every four hours. Bodily rest was important—in most cases two or three weeks in bed were sufficient.

Dr. R. SAUNDBY (Birmingham) remarked that the diagnosis of this disease was incomplete. "Gastric ulcer" was a name applied to a group of symptoms which might or might not be attended by actual ulceration. The first principle in treatment was complete rest in bed. Physiological rest of the stomach was of equal importance. Sulphates of iron and magnesia mixed were the best drugs. When hæmatemesis was present feeding by the rectum must be adopted for a limited time. Symptoms must be relieved as they arose. Occasionally teaspoonful doses of olive oil relieved the pain, and morphia might be required. Death was very rare when the patient came under treatment before perforation had occurred. An ice-bag over the epigastrium was useful. He agreed with Dr. Rolleston that pyloric obstruction (spasm) and recurrent hæmatemesis were indications for operation, but constant pain as an indication must be considered in relation to the condition of the patient's nervous system.

Dr. W. J. TYSON (Folkestone) thought that every case of anæmia in young women should be regarded as a possible case of gastric ulcer. If this were done and such cases were kept under observation more completely much good would ensue.

Dr. H. W. KING (Chester) dwelt on the necessity of prolonging treatment long enough for the ulcer to heal. He did not agree with washing out the bowel every day. He never advised operation.

Dr. W. COLLIER (Oxford) had had to deal with about 180 cases of gastric ulcer, cases being so diagnosed in which hæmatemesis had occurred. He agreed with the principles of treatment mentioned by Dr. Rolleston and Dr. Saundby. Many anæmic patients complained of epigastric pain and they were too numerous to take into hospital, as suggested by a previous speaker. As to drugs, bismuth and iron were his favourite remedies.

---

[1] Edsall and Miller, Transactions of the College of Physicians, Philadelphia, 1902, vol. xxiv., p. 225.

[2] Grünbaum: Brit. Med. Jour., vol. i., 1901.

[3] Max Einhorn: The Journal of the American Medical Association, May 20th, 1899.

eroding the whole thickness of the wall of the bowel and perforating the hepatic artery. It is probable that the manipulation necessitated by the delivery of the stomach for operation caused a fresh extension of the duodenal ulcer.

Mr. WHITE considered that the posterior operation caused unnecessary disturbance; he always employed anterior gastro-enterostomy, but he was careful to make the anastomosis not more than three-quarters of an inch from the gastro-colic omentum.

Mr. MITCHELL expressed his preference for posterior gastro-enterostomy and he considered it better that the jejunum should pass through the mesocolon than through the omentum. He wished to utter a protest against performing gastro-enterostomy indiscriminately for gastric ulcer. For all ordinary cases infolding the ulcer was quite sufficient to effect a cure; it acted probably by eliminating peristalsis.

Mr. KEETLEY thought that the supracolic route for gastro-enterostomy suggested by Mr. Hall had all the disadvantages of the anterior method and he considered that constipation with distension of the colon would give rise to obstruction by pressure on the jejunum.

Mr. T. H. OPENSHAW (London) was inclined to think the trans-omental operation the best method, it was so very much simpler. He agreed that gastro-jejunostomy was not necessary in all cases of gastric ulcer, for infolding or excision was quite sufficient.

Mr. HALL, in reply, said that in no case had the colon exerted obstructive pressure on the jejunum and therefore this objection was theoretical only.

OBSTETRICS AND GYNÆCOLOGY.

THURSDAY, JULY 30TH.

Professor MURDOCH CAMERON (Glasgow) read a paper on

The Diagnosis and Treatment of Uterine Fibroids.

He said that as regarded the association of sterility and fibroids he looked upon the latter as the cause rather than the result of sterility. In his own experience they were not more common in single than in married women. He drew attention to the fact observed by himself that fibroids in the fundus frequently caused a tumour having a "bullock's heart" shape. Some fibroids were soft and boggy, resembling an ovarian cyst. The submucous and interstitial forms gave rise to hæmorrhage. In the diagnosis he used the sound and when the latter was in the uterus and the tumour was moved the handle swayed from side to side. When causing no symptoms delay was advisable. If operation was required hysterectomy was the most satisfactory way of dealing with the case. Enucleation and oöphorectomy had been generally abandoned. The indications for operation were absolute, as pressure and hæmorrhage, and relative, as pain and discomfort giving rise to invalidism. In performing hysterectomy it was sometimes advisable to enucleate the tumour first so as to give room and in that case he would place an elastic ligature round the cervix during the enucleation.

Dr. HEYWOOD SMITH (London) thought that enucleation was sometimes very good treatment even when the tumour had a broad attachment, but they should follow the advice of Marion Sims and always complete the enucleation when once begun.

Dr. F. W. KIDD (Dublin) drew attention to the dangers of hæmorrhage and sepsis in cases of fibroid associated with parturition.

Dr. E. J. MACLEAN (Cardiff) had observed intermittent contractions in a fibroid tumour.

Dr. F. J. McCANN (London) spoke of the removal of fibroid tumours for æsthetic reasons.

The PRESIDENT, Professor W. STEPHENSON (Aberdeen), said that they were not justified in operating in cases of fibroid unless there was a distinct warning of danger to life. He had watched cases where women had carried fibroid tumours for 30 and 40 years with little inconvenience. He thought that the soft fibroid might diminish after the menopause but not the hard variety.

Dr. JAMES OLIVER (London) read a paper entitled

A Clinical Study of Internal Hæmorrhage in Association with Ectopic Pregnancy.

He said that in the early days of a tubal pregnancy if there was hæmorrhage the bleeding was not from the vessels of that portion of the wall of the tube which was in contact with the ovum but from those of the tubal wall on either side of the ovum. Hæmorrhage in uterine gestation was rare before the sixth week, but in tubal gestation it might occur at any time after the ovum had become detached and the blood found its way along the tube either to the uterus or the peritoneum. Tait laid stress on a previous history pointing to tubal disease and Parry in the same way mentioned the occurrence of previous sterility. This view was held till lately, but his own experience was opposed to this and he urged that too much importance should not be attached to it or a mistake in diagnosis would be made. Pain was the first symptom, the patient having either missed a period or not; in a small number of cases there was no preceding amenorrhœa. Sometimes the appearance of vaginal hæmorrhage was the first symptom. The passage of a decidual membrane was not as common as authors stated. Occasionally troubles of micturition and retention of urine were present and the latter could not always be put down to pressure but must be of reflex origin. Rupture occurred between the sixth and twelfth week and the hæmorrhage into the peritoneum might soon stop, but was apt to recur and to prove fatal. The hæmatoma had a peculiar doughy sensation difficult to describe but very characteristic. When there was hæmorrhage into the broad ligament there might be a large tumour as the ligament was distensible and permitted considerable extravasation; in these cases the uterus was fixed somewhat and some annular constriction of the rectum could be felt, especially if the left broad ligament was affected.

Mr. A. HORNE (Dublin) agreed with Tait's view as to previous sterility.

Dr. KIDD raised the question of pyrexia in intraperitoneal hæmorrhage even when no sign of suppuration was present.

Dr. O. E. PURSLOW (Birmingham) mentioned the liability there was to confuse uterine abortion with ruptured tubal gestation and thought that when the former was supposed to be present owing to the occurrence of abdominal pain and vaginal hæmorrhage the severity of the pain and particularly the occurrence of faintness should raise a suspicion that the case was one of tubal gestation.

Dr. T. WATTS EDEN (London) said that one after another former explanations of tubal gestation had had to be given up. Careful pathological and microscopical examination had failed to discover any signs of previous salpingitis and the tube outside the site of attachment of the ovum had been proved to be absolutely healthy. It had been shown that the ovum in the tube actually penetrated the muscular walls of the latter. He would ask Dr. Oliver why he thought that the hæmorrhage did not come from the site of attachment. A decidual formation in the uterus had been proved to be present in every case but it was not always discharged. He did not think that the vaginal hæmorrhage came from the tube but from the uterine decidua. There was sometimes much difficulty in diagnosing these cases from cases of uterine abortion. He thought that cases of extreme bleeding proving rapidly fatal were rare.

Dr. T. B. GRIMSDALE (Liverpool) had met with most cases in young newly married women and he thought that developmental peculiarities such as diverticula on the tubes were causes.

Dr. R. G. McKERRON (Aberdeen) agreed with Tait's view and thought that a history of previous sterility was important in the diagnosis.

Dr. J. A. C. KYNOCH (Dundee) believed that examination sometimes caused rupture of a gravid tube.

The PRESIDENT pointed out that the degree of collapse was not proportionate to the amount of hæmorrhage and that it was usually better to wait, carefully watching the pulse, which was the best guide. He attributed the pyrexia to the absorption of blood products.

Dr. OLIVER, in reply, thought that collapse in cases of pyosalpinx was due to leakage.

Dr. MACLEAN read a paper on

Two Successful Cases of Cæsarean Section for Contracted Pelvis in Dwarfs.

Conservative Cæsarean section was performed in each case and the patient was sterilised by removing an inch of each Fallopian tube. Both mothers and children recovered.

Dr. H. O. NICHOLSON (Edinburgh) read a paper entitled

Some Remarks on the Maternal Circulation in Pregnancy

which were enumerated as follows :—1. The hypertrophy of the heart which occurred during pregnancy was not always of a compensatory nature. 2. Signs of dilatation of the right heart in pregnancy (*a*) pulsation of the jugular veins, (*b*) systolic murmurs over the præcordia, (*c*) increase in cardiac dulness to the right, and (*d*) inconstancy of the arterial pulse in different positions of the body 3 A possible explanation of the cardiac hypertrophy and dilatation in pregnancy—contraction of the arterial and arteriole systems 4 The influences which regulated the arterial calibre (*a*) the vaso motor centre, and (*b*) the internal secretions of the suprarenal and thyroid glands 5 The different types of circulatory phenomena observed during pregnancy might possibly be related to disturbances of the normal influence exerted on the vascular system by these internal secretions (*a*) two opposite types of circulation occurring in pregnant women, and (*b*) some features of each type 6 Pre eclamptic symptoms and arterial constriction—value of thyroid extract and other vaso dilators in controlling these symptoms.

STATE MEDICINE

WEDNESDAY, JULY 29TH

Dr J C McVAIL (Glasgow), the President of the section, opened a discussion on

The Vaccination Acts and the Prevention of Small pox

He said that as the Government had determined to introduce during the present session no fresh legislation on the question of vaccination they were still in the position of discussing not what the law was but what it ought to be The value of vaccination as a preventive of small pox was not for them a matter of opinion, it was a matter of knowledge There was no reason whatever to suppose that small pox could be stamped out of Britain without vaccination and revaccination The work of persuading people to accept protection should always be done with discretion and advice should not be pushed too far If after reasonable persuasion a "contact" would not accept vaccination his subsequent attack by small pox might have quite an admirable effect in bringing about the vaccinal protection of a whole village The prevalence of small pox in the provinces emphasised the importance of obtaining by Act of Parliament special powers for meeting special difficulties When small pox threatened the Local Government Board should have special powers to issue epidemic regulations such as they now possessed with regard to threatened outbreaks of cholera or plague In these regulations the prevention of the spread of small pox by tramps should be dealt with for the opportunities which vagrants had of carrying the disease from village to village and from town to town rendered them a most serious danger to the nation The compulsory vaccination or re vaccination of "contacts," though at first this course might appear desirable, he did not advocate, but proposed that all tramps within a defined area should be examined and if necessary vaccinated, while in certain instances 'contacts' should be detained for a specified period Ample powers should be given not only for the inspection of premises where tramps or navvies resort but also for the examination of the inmates There was practically unanimity of opinion regarding the necessity for a thorough and proper performance of the vaccinal operation, and it was also conceded that calf lymph should either be provided by the Government or if produced by private makers these should work under Government supervision or certificate The authorities to administer the Vaccination Acts should be, in his opinion, the county councils or sanitary authorities exercising powers over extended areas, but whatever authorities had charge of the Acts they should be relieved of all responsibility as to the prosecution of defaulters In every case there should be a public prosecutor directly under the Local Government Board instead of as at present a vaccination officer appointed by the guardians but requiring to act independently of them The vaccination officer's relation to the matter should consist in handing to the public prosecutor, who would no doubt be a local lawyer, periodical lists of defaulters who had neither submitted to vaccination nor obtained an exemption certificate It would be for the central authority, in consultation with their local prosecutor, to determine what cases should be taken to court and what cases should be passed by The primary purpose of the Vaccination Acts was not to punish anti vaccinationists but to promote vaccination, and punishment of anti vaccinationists was wise only in so far as it promoted vaccination By means of consultation between the local prosecutor and the Local Government Board prosecutions might often be avoided where their effect would be not to advance but to hinder vaccination

Mr T W H GARSTANG (Altrincham) said that the question as to whether every medical practitioner should be paid by the State or whether the present system should be continued was only a matter of detail which might very well be decided when a new Vaccination Bill was introduced He proposed the following motion —

> Medicine Section of the British
> i the council the importance of
> Association for bringing before
> the country by means of local
> necessity for further legislation
> -evaccination

The motion was seconded by Mr HERBERT JONES (Hereford)

Dr A E MOLE (Gower) thought it was most unreasonable that a public vaccinator should be sent to vaccinate 'contacts" who might be the patients of another medical man *Lymph should be supplied to all private practitioners who* should be paid a fee for all successful vaccinations.

Mr GARRETT HORDER (Cardiff) considered that the administration of the Vaccination Acts should be in the hands of the sanitary authority and hoped that the new education authority would have school children periodically inspected with a view to discovering those who were unprotected by vaccination and if the Government were not prepared at present to make revaccination compulsory the education authority might urge children to be revaccinated before leaving school He had long been of opinion that public vaccinators should be officials who devoted their whole time to the work of vaccinating

Mr J M MACKENZIE (Kirkby in Ashfield) doubted the wisdom of whole time appointments, he did not altogether approve of a medical officer of health being debarred from private practice *He did not think that the private practitioner* had any grievance against the public vaccinator who offered vaccination to children outside his own practice, for these children were practically the children of the State

Mr W JONES MORRIS (Portmadoc) protested against a statement which had been made that public vaccinators were kept in office by doles

Mr J RANKIN (Kilmarnock) urged systematic and not spasmodic vaccination. The operation should be performed during infancy, then at seven years of age, and again at the age of 14 years

Dr JOSEPH GROVES (Isle of Wight) said that if all practitioners were paid by the State for vaccinating there would be a difficulty in connexion with inspection The Local Government Board would have to increase its staff of inspectors very considerably if inspection were properly carried out

Mr EBENEZER DAVIES (Swansea) urged revaccination before the wage earning age maintaining that a workman preferred the remoteness of small pox to the immediate certainty of incapacity for a few days He said that during the recent outbreak of small pox in Swansea there were 14 000 persons revaccinated and not one contracted the disease Before the epidemic the vaccination returns showed that 10 per cent. of the children born in the town were unaccounted for, but since the epidemic all but 4 per cent were accounted for

Dr J BRASSEY BRIERLEY (Old Trafford) disapproved of whole time public vaccinators and considered that those who had brought discredit on vaccination were those practitioners who only made one mark

Dr J M MORRIS (Neath) advocated an annual inspection of *the inmates of common lodging houses for the purpose of* securing the revaccination of tramps who, he maintained, were the chief cause of the spread of small pox

Dr C R. DRYSDALE (London) said that they were all convinced that vaccination prevented small pox but not for life They ought, therefore, to take a firm stand and say that children should be revaccinated at the age of 12 years. He proposed the following motion which was seconded by Mr H. H TIDSWELL (Swansea) —

> i in cities of the
> list in Germany
> of on account of
> e under a law of
> on under a law of
> s performed with
> animal vaccine, this meeting is of opinion that all children in the United Kingdom should be vaccinated in infancy and revaccinated at the age of ten or 12 years and that animal vaccine alone should be

causing pes equinus. The left foot was sometimes cold and its skin was tense, shiny, and livid, sometimes dark purple or blackish, and at others scarcely different in appearance from that of the other foot. Heat or cold applied caused pain but a dependent position did not. Scars of ulcers and effects of the gangrene were to be seen on both feet. The right foot, except for these and some pigmentation and purpuric spots, seemed healthy. The plantar reflexes were absent on each side; the knee-jerk was increased on the left side but diminished on the right side. The left leg was much wasted but its muscles showed no degenerative electrical reactions. Pulsation could be felt in the tibial arteries in both extremities. There were no signs of disease in the thoracic or abdominal organs. There was no albumin or sugar in the urine. The pupils were equal and reacted naturally. No abnormalities of sensation were observed. Mr. Michels performed Chopart's amputation of the left foot; the arteries were not found to be blocked and the wound healed well. When the patient left England, two years and seven months after his first symptoms, the wasting of muscles was much less and he had no pain. Microscopical sections of the skin of the foot, which had been cyanosed for a long time, showed great thickening of the walls of the arterioles. Sections of the internal plantar artery and dorsal artery of the foot showed decided thickening of the middle coat but no endarteritis obliterans or thrombosis. Sections of the extensor brevis digitorum muscle showed characteristic ischæmic myositis with atrophy of the muscle fibres, interstitial fibrosis, and thickened arterioles. The nerves showed nothing abnormal. The bones of the foot were atrophic. A study of this case seemed to favour the view that a variety of obliterative arteritis might commence in the arterioles of the extremities. And although the peripheral nerves microscopically examined appeared to be normal the presence of a nervous element might explain its occurrence and would connect some cases of obliterative arteritis with Raynaud's disease and erythromelalgia as well as with trophic disorders of the extremities in tabes dorsalis and syringomyelia.

Professor **THOMAS OLIVER** (Newcastle-on-Tyne) was next called upon to open a discussion on

Miners' Diseases.

He commenced by defining miners' phthisis as a disease exhibiting signs and symptoms in the lungs of a more or less chronic character and occurring in miners whose lungs after death were deeply pigmented and somewhat solidified. It was generally regarded as the result of breathing a dust-laden atmosphere—a variety, therefore, of pneumoconiosis—anthracosis for coal-miners, silicosis for quarrymen, and chalicosis for gold-miners being appropriate names in the different cases. The ventilation of coal mines and the operation of the mining laws had made miners' phthisis much less common of late years. The disease was first described in 1703 by Ramazzini. In 1860 Peacock identified microscopically and chemically the dust in the lungs of a patient with that in the atmosphere he had been working in, and Zenker showed the same in a girl, the red colour of whose lungs was due to oxide of iron particles which occurred in the air of her place of work where red paint was made. These and other facts showed pneumoconiosis to be a dust disease due to occupation. In this discussion Professor Oliver proposed to consider whether continued breathing of dust could cause phthisis. The operation of such complicating factors as alcohol, syphilis, previous illnesses, and tuberculous infection in the home and elsewhere made human pathology insufficient to solve the problem. The greater part of the dust they breathed never reached the lungs at all but was caught on the mucous membrane of the mouth, throat, and nose, or if it reached the trachea and bronchi was caught by the mucus and removed by ciliary action or by coughing. The lungs, however, of dwellers in towns did become pigmented, yet without symptoms. Causes must occur in order to make the condition pathological. These might be intrinsic, such as defect in the epithelium of the respiratory passages, or extrinsic, such as a heavily dust-laden atmosphere. Naso-laryngeal and ordinary naso-oral breathing, if the mucosa of the upper air-passages was healthy, was shown to be a barrier to the entrance of dust into the lungs by the readiness with which pneumoconiosis developed after tracheotomy. The nature of the dust, its quantity, and the depth of the inspiratory process largely determined its effect on the epithelium of the lungs. Secondary infection might be prepared for by irritation diminishing resistance. In spite of this the lung was able to remove dust if the inhalation of it was interrupted. Control animal experiments supported this observation and it explained the relief obtained by men who after working in a dusty atmosphere were able to have a long break in their occupation. Turning to the pathology of miners' phthisis Professor Oliver related the manner in which the black particles of dust were carried by the wandering cells of the finer bronchi, which were distinctly phagocytic and mobile, through the branched plasma spaces into the lymphatic canals under the pleura and thence by way of perivascular or peribronchial vessels to the bronchial glands. Experiments of feeding amœbæ with coal dust showed that they absorbed without any apparent harm not only fine dust particles but a few quite large particles within 24 hours of its being given to them. In ordinary circumstances the lining epithelium of the bronchi efficiently barred the entrance of dust to their walls. Fibrosis soon followed the entrance of dust to the alveolar walls. But since anthracosis might be present without symptoms and since this fibrosis appeared to result from irritation, some other factor seemed necessary to cause it. Professor George Murray had failed to find micro-organisms in coal. It had been suggested that it was the presence of particles of stone in the dust besides coal. Drawings of sections of the lung of a Transvaal gold-miner who died from phthisis showed excessive fibrosis with signs of catarrh in the alveoli and the presence of large round phagocytic cells laden with pigment. The dust conveyed by these cells exercised an irritant action and led to fibrosis, and subsequent degeneration of the cells which englobed them liberated the dust particles which then lay free in the fibrous tissue. Professor Oliver considered the fibrosis of miners' phthisis to be usually non-tuberculous and possibly a natural attempt to get rid of the dust. Tubercles with giant cells might, however, be found, but to discover tubercle bacilli was difficult. Their presence probably indicated a secondary infection rather than primary. Cavities in anthracotic lung might conceivably result from necrosis following obliteration of vessels by fibrosis or be bronchiectatic, or, as in some cases, might indicate a tuberculous origin. Excepting nitrogen peroxide, a gas which was given off by the higher explosives and which caused acute pulmonary congestion, the inhalation of gases could not be regarded as having any causal connexion with pneumoconiosis. Referring to the experimental production of anthracosis, Claisse and Joué's work went to show that with soot or charcoal a considerable degree of pigmentation of the lung took place without disturbance of breathing or circulation, but secondary changes due to bronchitis, broncho-pneumonia, the dust itself, or tubercle led to dyspnœa. The hardness of the dust particles was important. Dealing with the relation of anthracosis to tubercle Professor Oliver showed that finding tuberculous lesions in the lung on post-mortem examination did not prove the disease to have been due to tuberculosis, nor, on the other hand, was it always easy to detect the tubercle bacillus when it was present. In the case of the gold-miners' lung clinical and pathological evidence supported the statement that the disease throughout was non-tuberculous. In this connexion the high mortality and bad ventilation in constructing the St. Gothard tunnel were mentioned by Professor Oliver in comparison with the much lower mortality and rarity of phthisis in the Simplon now being made, in which ventilation was very good and stone-dust was avoided, although the workmen's lamps made the air very smoky. Although in the case of the liver the injection of tubercle bacilli into the blood going to it could produce marked fibrosis Professor Oliver did not think that they played any part in the fibrosis of anthracosis but that in some way not yet fully understood the macrophages which conveyed the dust particles into the lung were responsible for its occurrence. The much easier development of anthracosis experimentally after division of the vagi was mentioned but not discussed.

In the discussion which followed Professor **J. G. ADAMI** (Montreal) agreed with Professor Oliver on the whole as to the pathology but questioned whether the phagocytes played a direct part in causing fibrosis, stating that a large deposit of foreign bodies is sufficient to cause fibrosis without the intervention of phagocytes—as when round a bullet, for instance. He agreed that the occurrence of tuberculosis should be regarded as a secondary condition implanted on weakened lungs and he deprecated the use of the term "coal-miners' phthisis."

The PRESIDENT, who next spoke, also thought "coal-miners' phthisis" a bad term. He saw in coal-miners the condition of "black spit," which he believed to be an aseptic slough of lung tissue much more than a fibrotic condition, while among the men in the freestone quarries intense fibrosis was characteristic of the silicosis from which they suffered. He regarded the strong basement membrane in the bronchial tubes as an efficient agent in protecting them from deposits of dust. The macrophages which Professor Oliver referred to he regarded as really alveolar cells and doubted if they conveyed particles of dust. Finally, he stated that never yet had he seen a case among coalminers of tuberculosis but he had seen many amongst stonemasons.

Professor OLIVER, in reply, pointed out that the softness of the Midlothian coal probably accounted for the absence of fibrosis, while pigmentation was extreme. In reference to the phagocytic view he had based his opinion on the appearances in animals experimented on in which within a few hours of insufflation of dust these large cells were seen to increase in numbers in the alveoli and were seen full of particles in the vessels and spaces. Professor Oliver illustrated his remarks on these cells with some beautiful drawings showing large angular pieces of dust in the alveoli, while in the walls and spaces were seen the large cells containing minute finely divided black granules.

THURSDAY, JULY 30TH.

The business which occupied the attention of the section was a discussion on

Splenic Anæmia.

Dr. H. D. ROLLESTON, who opened the discussion, began by pointing out how vaguely the term "splenic anæmia" had been used in clinical medicine to denote the association of anæmia with enlargement of the spleen when the cause of the enlargement was not due to any well recognised cause. In consequence, the examination of the blood sometimes gave discordant results, since secondary anæmias, such as those due to tubercle or cirrhosis of the liver, might be regarded as splenic anæmia and their true cause found on post-mortem examination. Although, therefore, diagnosis might be a matter of very great difficulty and mistakes were, and often would be, made this did not disprove the existence of splenic anæmia as a disease. Dr. Rolleston then enumerated the clinical characters of the disease in question: (1) splenic enlargement which could not be correlated with any known cause; (2) absence of enlargement of the lymphatic glands; (3) anæmia of a type midway between secondary anæmia and chlorosis; (4) leucopenia or at most no increase in the number of white blood corpuscles; (5) an extremely prolonged course lasting years; and (6) a tendency to periodic hæmorrhages, especially from the gastro-intestinal tract. He next proceeded to discuss the existence of a pathological condition of which these were the symptoms. Cases, he said, did occur which showed after death no lesion but that of a chronic change in the spleen, but more was required of clinical pathology for the diagnosis of chronic splenic anæmia from secondary anæmias, and to know the significance of reaction to the tuberculin test would be of value. The structural changes in the blood, the spleen, the bone marrow, and the lymph glands were next discussed individually, as well as the relation of chronic splenic anæmia to Banti's disease, and finally the pathogeny was dealt with. A diminution of erythrocytes less than in pernicious anæmia and a low hæmoglobin value occurred. The experience of Osler was quoted who gave the average red corpuscles count as 3,425,000 and the lowest 2,187,000 and the hæmoglobin average as 47 per cent. In severe cases poikilocytosis and nucleated red cells, especially normoblasts, were found. The leucocyte count in adults was important. Except for complications causing leucocytosis secondarily such a condition was absent; in fact, leucopenia occurred. The average number in Osler's cases was 4520 per cubic millimetre. More differential counts were needed but there were generally an increase in mononuclear cells and a diminution of polymorphonuclear cells, and according to Da Costa 5 or 6 per cent. of mast cells were sometimes present. The same observer stated that the blood presented no definite picture by which splenic anæmia could be diagnosed from some other conditions and Ewing found similar changes in the blood in lymphadenoma and in gumma of the spleen. In reference to the spleen Dr. Rolleston remarked its enlargement especially in chronic cases; up to 12½ pounds in one case of 13 years' duration and an average of 58 ounces in 13 other cases. Localised thickenings of the capsule occurred and perisplenitis was common. Fibrosis of the organ was seen on section. The microscopic appearances differed but might conceivably have been the result of various stages in the same process. Fibrosis of the organ, atrophy of the lymphoid elements, and fibrosis of the corpuscles of Malpighi with absence of pigmentation or other evidence of hæmolysis were features common to all. The three types of the disease which he then described were: (1) cases which only showed fibrosis of the organ with atrophy and fibrosis of the Malpighian bodies; (2) cases like the first but with endothelial proliferation of the lining of the blood sinuses of the pulp in addition; and (3) rare cases in which endothelial proliferation had so increased that the large venous blood sinuses of the pulp were filled with large cells of from 13 to 16 μ. These cells had clear protoplasm and some had more than one nucleus, while others showed active karyokinesis. Endothelioma or carcinoma had been names applied to this condition which thus simulated them. Gaucher in 1882 described it as primary carcinoma of the spleen and Picou and Ramond in 1896 did the same and suggested that it arose from fœtal inclusions of pancreatic cells, which Peremeschko had previously described. The proliferation of the endothelium spread from the sinuses to the vessels which showed endarteritis, a process which favoured thrombosis and cut off the blood-supply. Endophlebitis of the splenic vein thus resulted and Banti considered that the terminal cirrhosis of the liver was induced by an extension of this process to the portal vein. Extension of the endothelial proliferation from the splenic blood sinuses to the lymphatic vessels and a similar change in the lymphatic glands in the hilum of the spleen had been described. Dr. Rolleston next discussed the relation of these morbid appearances to each other. He thought it unlikely that the proliferated endothelial cells eventually formed fibrous tissue, as Bovaird suggested, or that the endothelial cells passed away leaving only fibrous tissue, for with regard to the latter view the extreme endothelial proliferation occurred in the cases of long duration and with regard to the former view it seemed more probable that a chronic intoxication caused endothelial proliferation simultaneously with fibrosis. The cases with marked endothelial proliferation might have perhaps been uncomplicated cases due to a specific cause, if there were one, while those with fibrosis might have resulted from a mixed infection. The view, however, which Dr. Rolleston himself favoured was that the two conditions were quite distinct. He then suggested some questions which arose as to how far the morbid changes in the spleen were pathognomonic. He knew of no other disease in which endothelial proliferation occurred, but then it only occurred in a few cases of splenic anæmia. The nature of the fibrosis, its distribution in the spleen, and its relation to that produced in rabbits by injection of meta-toluyen-diamine or other substances, or to the result of chronic bacterial poisoning or other chronic inflammatory conditions, should be considered. Recorded observations on the marrow in long bones again gave discordant results. Sometimes no change, and at others extension of the red marrow into the shaft had been found. Of the condition of the lymphatic glands very little was known beyond the anatomical fact that they were not enlarged. Besides this must be remembered Picou and Ramond's observation of the condition of the glands in the hilum of the spleen. In discussing the relation of splenic anæmia to Banti's disease Dr. Rolleston pointed out how other diseases existed of splenic anæmia associated with cirrhosis of the liver which with Banti's disease seemed to form a series: (1) chronic splenic anæmia; (2) chronic splenic enlargement and jaundice but no cirrhosis; (3) Banti's disease—splenic anæmia terminating with cirrhosis of the liver, jaundice, and ascites; and (4) splenomegalic biliary cirrhosis in which the symptoms were the same as in Banti's disease but in which, according to that observer, the condition was one of chronic congestion, while in the disease bearing his name it was one of fibrosis, atrophy of the Malpighian bodies, and diminution of the veins. Chauffard insisted that biliary cirrhosis might result from poisons formed in the spleen having reached the liver by the splenic vein and that the other large tributary of the portal vein tapped another source of poisons—the intestinal canal. If a chronic intestinal intoxication or infection caused the disease removal of the spleen would not cure it as it sometimes did unless the cause at first derived from the intestine had become confined to the spleen subsequently. Recent experiments by Charlton of repeated [illegible] a non-virulent strain of the bacillus coli peritoneum or veins of rabbits were of importance in that he obtained extreme diminution of erythrocytes, a corresponding fall in hæmoglobin with the presence of poikilocytes and nucleated red cells but absence of leucocytosis. In some cases of chronic splenic anæmia microscopic examination of the liver showed slight but arrested fibrosis—a condition almost the reverse of Banti's disease. In dealing with the subject of the pathogeny of splenic anæmia Dr. Rolleston mentioned that sometimes splenectomy might cure the disease and if done for rupture of the organ in healthy people did not induce the disease, which therefore could not arise from suppression of its function. A theory which assumed that hæmolysis occurred in the spleen by virtue of an enzyme manufactured by the endothelial cells, while it accounted for the blood changes since these cells were so increased, failed to explain the cause of their increase, and the blood in splenic anæmia appeared the very opposite of that in pernicious anæmia, where great blood destruction is believed to occur in the portal area. Since removal of the spleen seemed sometimes to have cured the disease it was possible that the anæmia depended on splenomegaly and that they were not both concomitant effects of a chronic toxic or infective condition of the blood, but that this gave rise to endothelial proliferation and later to fibrosis or to atrophy of the Malpighian bodies and to the blood changes. There was no experimental evidence to show that an animal could produce autolysins for its own tissues or that the lymph glands showed such chronic changes as were produced in guinea-pigs by injection of splenotoxin; hence it was unlikely that the spleen produced cytotoxins which destroyed the red and white cells. No micro-organism could be correlated with the splenic change. Until it was settled whether or no the disease was an intoxication or an infection any reply to whether splenic anæmia was an established pathological entity would have to be suspended or given in the negative.

Dr. TREVOR, who was next called upon to speak, described in detail the morbid appearances of the spleen, mentioning its enlargement and increased weight, the localised thickenings of its capsule by perisplenitis or lamellar fibromata, and on section the homogeneous look owing to loss of the speckles caused by the Malpighian bodies. Endarteritis and endophlebitis of the vessels occurred and atheromatous and calcareous patches were met with. An exceptionally remarkable instance of this was shown by Dr. Trevor in the pathological museum; calcification of the splenic vessels was extreme and two aneurysms occurred on the splenic artery. The histological changes met with in splenic anæmia might be summed up as: (1) atrophy of the Malpighian bodies brought about either by an over-growth of the connective tissue ensheathing the central artery or by an encroachment of fibrous tissue from the periphery; (2) thickening of the capsule and the trabeculæ, the walls of the vessels and of the fine fibrous reticulum forming the walls of the spaces of the splenic pulp; and (3) proliferation of the endothelium lining the splenic vessels and blood spaces of the pulp. The proliferated endothelium appeared in the form of large cells with clear protoplasm and peripherally situated nuclei, and in some instances they completely filled the blood space. Occasionally giant cells were present. Dr. Trevor then briefly gave the opinions of various authorities on the pathology of the condition and related an account of each of the three cases from which he had obtained the specimens which he was exhibiting. The patients were all males, aged respectively 23, 53, and 35 years, and the duration in two cases 12 years and nine months respectively. A table of 11 cases which had been drawn up to show whether the period of the disease had any bearing on the sequence of the symptoms gave a negative answer to the question. Dr. Trevor next turned to the consideration of whether the appearances of the spleen described as distinctive of splenic anæmia were really to be taken so, and concluded that judging only from the spleen this would be impossible, yet with the knowledge of changes elsewhere it might complete the picture of a case of splenic anæmia. Finally, in reference to lymphadenoma he thought that the appearances seen in that disease did not resemble those of splenic anæmia.

Professor SENATOR (Berlin) next in his remarks expressed the opinion that splenic anæmia could not be separated from other diseases of hæmopoietic organs. The spleen in this disease exhibited hyperplasia first of the pulp and later of the connective tissue. There was hyperæmia and the cells were very phagocytic, were large and rounded and with large vesicular nuclei. Many cells were probably of hypoblastic origin from the endothelial cells. Professor Senator almost always had found other abdominal glands enlarged. Myelocytes occurred in the blood. The bone marrow showed embryonic appearances (the normoblasts and giant cells were decreased) and collections of lymphoid cells occurred as grey spots. The liver showed alterations of three kinds: (1) small collections of round cells like lymphocytes—metastatic lymphomata; (2) collections of large endothelial cells like those in the bone-marrow and spleen; and (3) cirrhosis, sclerosis of the intima of the splenic or portal vein often due to syphilis, especially inherited syphilis. In some cases cirrhosis was secondary and a consequence of splenic changes. Swelling of the spleen was independent of the liver and was at first due to congestion. The existence of large endothelial cells coming from the spleen pointed to the liver changes being secondary to the splenic. Ascites did not always occur and might occur earlier than in Banti's disease. It might be due to the blocking of the lymphatics, to the swelling of the spleen, or to the congestion of the organs. A specific organism for the disease had been often sought for but never found. Swelling of the spleen might also be due to the condition of the blood, as in malaria, Barlow's disease, &c. The injurious substances coming from the intestine and the constant swelling of the abdominal lymph glands pointed to this. The injurious substances need not always be the same and so different hæmopoietic organs might be affected. Lymphadenoma resulted from the entrance of a noxious agent by way of the upper part of the alimentary tract. Finally splenic anæmia should be united under the term pseudo-leukæmia with diseases of other hæmopoietic organs.

Dr. J. MICHELL CLARKE (Clifton, Bristol) next spoke, mentioning a case in which the erythrocytes numbered 1,900,000 and the hæmoglobin index was 22 per cent. The white cells were 3500 and gave a differential count of polymorphonuclears, 56 per cent.; small lymphocytes and transitional cells, 25·3 per cent.; large mononuclears, 11 per cent.; and eosinophiles, 0·3 per cent. In another case the differential count was the same, and in a third case of only six months' duration the erythrocytes were 3,430,000, hæmoglobin 42 per cent., leucocytes 8000, and the differential count gave normal proportions. He thought that the frequency of severe hæmorrhages must affect the blood count. As to the occurrence of ascites, when it was present it was not always caused by cirrhosis of the liver. Heart weakness with chronic congestion of the liver and spleen and impoverished condition of the blood, possibly by the presence of toxins, might account for it. He thought also that a chain of dark-red, enlarged lymph glands running from the hilum of the spleen along the upper border of the pancreas was of pathological importance. Another important point was the absence of fatty degeneration in any of the organs, thus contrasting with pernicious anæmia and chlorosis. In reference to the cause Dr. Michell Clarke strongly favoured the view that the disease was the effect of a toxin reaching the spleen by the blood stream. In conclusion he referred to some cases of anæmia in which the blood showed the appearance of secondary anæmia, but no cause could be assigned for the large spleen.

Dr. W. EWART (London) related the clinical history of one of his cases of splenic anæmia from which was obtained the remarkable specimen of calcification and aneurysm of the splenic artery.

Dr. F. M. SANDWITH (Cairo) made a few remarks on the occurrence of the disease in Egypt stating that it was not very uncommon in children, so that here alcoholism as a cause could be excluded. Jaundice rarely occurred. In one case of a man, aged 22 years, 30 pints of fluid were drawn off from the abdomen. The liver in this case was not enlarged.

The PRESIDENT, summing up his ideas of what had been stated, remarked that in this disease the spleen was subject to certain conditions of fibrosis and sometimes giant cells were produced, that the liver showed a tendency to cirrhosis, that in the blood the erythrocytes were diminished without there being leucocytosis, and that he thought these might be epiphenomena while the true pathology was to be found from research upon the intestine, the source of a toxin causing hæmolysis and changes in the liver and spleen, and he suggested for research an investigation of the flora of the intestine.

After the discussion the members attending the section adjourned to the lantern room for a demonstration by Dr. CLARKE on Degenerative Changes in the Spinal Cord in cases of Diphtheritic and Alcoholic Poisoning affecting the Anterior Horn Cells and their Fibres.

OPHTHALMOLOGY.

WEDNESDAY, JULY 29TH.

Mr. H. E. **JULER** (London), the President, opened the proceedings with a short address directing attention to the subjects proposed for discussion and then called upon Mr. A. **STANFORD MORTON** (London) to open a discussion on

The Operative Treatment of Conical Cornea.

Mr. Morton said that the operative treatment of this condition was beset with difficulty and that an examination of the results obtained under varying methods would be useful. He excluded from the inquiry cases capable of improvement by the use of glasses. The object was to flatten the cornea, which could be done either by the cautery, with or without perforation of the cornea, or by the excision of the apex of the cone. He had tried each method and he handed round a record of 13 cases which he had treated, giving the visual acuity of each case with and without glasses, both before and after operation, and also indicating the degree of permanence of the improvement obtained. In the average there was a high degree of improved vision. Excision he had tried first; he preferred a vertical wound, which was more easily protected by the lids. He had used the cautery to burn concentric zones, as favoured by Sir Anderson Critchett, and had in cases perforated the cornea. There were risks associated with each procedure: in excision there was danger from synechiæ, anterior and posterior, from rise in tension, and from hypopyon; in perforation by the cautery the same risks attended. Doubtless these risks were diminished in cauterisation without perforation but they were not abolished. As regards scars, excision left the cleanest cornea. He concluded by reading a letter from Sir Anderson Critchett who agreed that the excision of the cone presented special advantages in some cases, but thought that the best average good result was obtained by the cautery without perforation; he emphasised the necessity of making the central burn as deep as possible.

Mr. J. **TATHAM THOMPSON** (Cardiff) said that of late he had used the cautery almost solely, burning deeply just short of perforation. The results from this mode were most gratifying. He provided for the scar of the burn by making a small optical iridectomy beforehand.

Dr. **KARL GROSSMANN** (Liverpool) said that he had given up excision for the cautery. He intended to try the effects of projecting upon the cornea a minute stream of very hot air.

Mr. **RICHARD WILLIAMS** (Liverpool)—the original introducer of the use of the cautery for conical cornea—said that he preferred to use the cautery and to perforate the cornea. He had never seen hypopyon, synechiæ, or other ill-effects follow; his results were uniformly good. He thought that a deep pit of the cornea short of perforation tended to increase the scar, even to leave a dimple. His rule was, in the case of one bad eye and one improved with glasses, not to operate at all.

Mr. R. W. **DOYNE** (Oxford) and the **PRESIDENT** both said that they had formerly practised excision but now always used the cautery.

Mr. **MORTON**, in reply, said that he did not like sutures in the cornea in any case, much less when, as in this disease, the cornea was peculiarly thin. As regards iridectomy he thought the procedure would be a disadvantage in most cases, since he found the vision markedly diminished on the use of a mydriatic, probably by reason of the loss of the stenopæic fissure existing between the corneal scar and the edge of the pupil. He had performed iridectomy on occasions but only because of special circumstances. On the question of perforation or non-perforation of the cornea in the use of the cautery, he felt that to aim at cauterising just short of perforation was to attempt the impossible, for burning deeply might cause sudden perforation. The size of the ellipse excised by the cutting method should be about two millimetres.

Major **HENRY SMITH**, I.M.S. (Jallundhar, Punjab), read a paper on

Extraction of Cataract in its Capsule.

He referred to the discussion on this subject at the meeting of the Association in 1901 and to a statement by Mr. Richardson Cross that "the ideal extraction was of the whole lenticular body in its capsule." In India this operation had been practised since the early "seventies" by several officers of the Indian Medical Service and the utility of the operation had been such that he hoped its use would become more general. In the first four months of this year Major Smith had extracted 1023 lenses in their capsules. Of these 99·42 per cent. had first-class results in visual acuity; 0·19 per cent. were second-class; and only 0·39 failures. The dangers of the operation were in the possible escape of vitreous, which occurred in 6 6 per cent.; and premature bursting of the capsule, which occurred in 8 per cent.; but more serious was the leaving behind of portions of the ruptured capsule, which occurred in 4 per cent. of the cases. Such accidents did not necessarily spoil the final result as was indicated by the very high percentage of first-class cases. His method was by an ordinary sclero-corneal incision, with or without iridectomy, as the particular cases indicated (most were done without iridectomy), then steady and long-continued coaxing pressure above and below the corneal incision, above with a spoon, below with a blunt hook; by this means the lens ligament was ruptured and the lens was delivered entire. The visual results were such that with a + 8 D. lens 60 per cent. of the cases could pass the military dot test at from 40 to 50 feet, whilst 20 per cent. passed at 20 feet.

Mr. N. **BISHOP HARMAN** (London) said that his only experience of extraction of cataract in the capsule was in a case of hypermaturity with increased tension produced by the irritation of the lens. When the tension was relieved by the making of the initial corneal incision the lens rose up bodily from its resting-place and escaped on to the cheek where it burst, leaving only a little fluid, some capsule, and an amber-like bead, the relic of the nucleus. The case did well, but the occurrence was not one that was pleasing.

Dr. W. A. **BRAILEY** (London) said that in his opinion the force required to rupture the lens ligament was so great that it would be difficult to avoid loss of vitreous.

The **PRESIDENT** said that he had seen the operation performed by one of his colleagues at the Westminster Ophthalmic Hospital and there was in most cases a loss of vitreous which was not desirable.

Major **SMITH**, in reply, said that the pressure required was not a serious objection, for it was gentle and prolonged and hæmorrhage from the tearing of the ciliary processes was very rare. He thought that the difference in the reparative processes in the British and Indian races was not of much account, for if at home there were cases of bad alcoholic subjects there were in India very bad cases of malarial subjects which were, he thought, much the worse to operate on.

Dr. A **DARIER** (Paris) read a paper on

The Treatment of Serious Syphilitic Diseases of the Eye.

In grave syphilitic lesions which had proved rebellious to ordinary treatment he recommended that before hope was abandoned there should be instituted an intensive and systematic course of mercury. He employed the intravenous injection of cyanide of mercury in progressively increasing doses, commencing with one or two milligrammes of the salt and rising to as much as five milligrammes daily until the reaction limit was reached, as indicated by the onset of colic. After from 12 to 15 such injections the effect could be much increased by the concurrent subconjunctival injection of the salt. By the adoption of three or four cycles of such treatment with intervening periods of rest and the use of pilocarpine he had obtained most satisfactory results in peculiarly obstinate forms of syphilis of the eye. The treatment should be repeated two or three times in the year.

Mr. **SYDNEY STEPHENSON** (London) said that he had recently made an extensive trial of Dr. Darier's method in some hitherto hopeless cases; in one such there had been relief of the conditions in three months. He thought that the treatment promised much for the future.

Dr. **DARIER** also read a paper on

The Subconjunctival Injection of Koch's Tuberculin (T.R.) in a Case of Interstitial Keratitis of Tuberculous Nature.

The case was one of complete degeneration of the cornea; the disease had lasted two years and the sclerosis of the cornea was such that it gave a porcelain-like appearance to the structure. All other means had failed; warmth, fomentations, atropine, mercurials, and even jequirity produced no reaction after the first instillation. He then instilled a strong solution of tuberculin into the cul-de-sac without producing any effect. The subconjunctival injection of the same fluid was, however, most intense in its action; in fact, he feared for a while for the integrity of the eye, but ultimately the eye regained a visual power amounting to $\frac{1}{18}$.

THURSDAY, JULY 30TH.

Mr. **EDWARD NETTLESHIP** (London) opened a discussion on

Ocular Changes in Relation to Renal Disease.

He said that although much was already known about the eye changes in renal disease information was still needed both from ophthalmologists and physicians upon several points, and the following heads were suggested as furnishing matter suitable for further investigation. 1. Did albuminuric retinitis ever occur in primary acute nephritis other than the kidney affection of pregnancy? 2. Cases of retinitis from lardaceous disease of the kidneys and from nephritis due to inflammation of the bladder, ureter, or pelvis of the kidney should be recorded. 3. The retinitis of pregnancy. Observation of such cases was desired (1) in which the kidneys were known to be diseased before the first pregnancy and (2) in which there was positive evidence that they were sound. All cases of pregnancy retinitis should be examined for signs of established chronic nephritis. The propriety of inducing premature labour may depend partly upon the diagnosis in this respect. 4. Age and sex. There was a great need for careful records of cases of renal retinitis in young subjects. 5. He recognised two chief factors in the production of renal retinitis—the state of the blood and the state of the retinal blood-vessels. He narrated cases in which a condition of visible disease in the retinal arteries had been noted without evidence of kidney disease; in some such cases there had followed, sooner or later, unequivocal signs of chronic nephritis. 6. It has been recently asserted that the characters of the retinitis in different cases justified inferences as to the kind of nephritis (chronic interstitial or chronic parenchymatous) from which the patient suffered. Attention was called to the importance of watching the course of the retinal disease from beginning to end and of distinguishing between the two kinds of white opacities. 7. Retinitis occasionally occurred in cases exhibiting both glycosuria and albuminuria; they had to determine which produced the eye changes. Retinitis in diabetic persons, whether their urine contained albumin or not, occurred later in life than albuminuric retinitis, but the relative liability of the sexes was about the same as in the ordinary albuminuric retinitis (excluding pregnancy cases). 8. Other points that needed elucidation were: the influence of scarlet fever and inherited syphilis in producing the chronic renal disease leading to retinitis; the occurrence of renal retinitis in only one eye; cases in which more than one attack of retinitis had been seen and watched through, with special reference to the changes left by the first attack and to the effect of retinal atrophy upon the characters of a second attack; the cause of the frequent peripheral pigmentation left by renal retinitis; the cause of the night blindness occasionally met with in renal retinitis; the nature and ophthalmoscopic appearances of the choroiditis said to occur in some cases of albuminuria; and the nature of the white, opaque thickening of the coats of the arteries and the veins seen after some cases and of the appearances resembling retinitis pigmentosa after others.

Dr. George Carpenter (London) said that observation had led him to the opinion that the most frequent cause of retinal changes found in children was congenital syphilis.

Mr. Henry Power (London) narrated two cases which well illustrated the variability of the prognosis to be attached to the symptoms according to the condition of the subject. In the first case a man, aged 35 years, there was sudden impairment of vision, spots appeared about the fovea which seemed to indicate albuminuric retinitis, yet neither he nor the physician could find albumin in the urine. Three weeks later the eye changes had increased and the vision diminished; then there were abundant changes in the urine and death followed rapidly. In the other case, during a pregnancy there were marked eye changes. He thought then the prognosis was grave, but the patient had recovered completely.

Mr. Gustavus Hartridge (London) was inclined to think that the prognosis might follow the radical distinctions of the causes of the conditions. In one case the cause was of a toxic nature—changes in the blood; of this order were the cases occurring in pregnancy. The second order of cases arose from changes in the blood-vessels; these were much more serious cases and death was much more likely to follow at an early date. He was inclined to think that pigmentation frequently followed the retinitis of pregnancy and that this pigmentation indicated the high-water mark of the œdema.

Mr. A. Q Silcock (London) said he had failed to find retinal changes in cases of surgical kidney even when there was prolonged suppression of urine from obstruction by calculi or otherwise. On the other hand, he found such changes were common in the nephritis of cardio-vascular origin.

Dr. R. A. Reeve (Toronto) narrated the case of a young man who had come under his care and in whom there was sudden visual failure with typical retinal changes. Death ensued in one month.

Mr. Doyne (Oxford) asked what importance was attached to the supposed compression of veins by arteries. He did not think the lumen of the vein was seriously diminished by such overlying—at any rate, not so as to cause distal accumulation of the blood—seeing that the arteries were at the same time diminished in calibre by degenerative changes. The fact that the early symptoms of the disease were much more frequently seen in women than in men he accounted for by the greater number of women attending hospitals, men refraining from attending until the latest date possible.

The President emphasised the uncertainty attending the prognosis to be attached to such retinitis. Doubtless the prognosis attending albuminuric retinitis was serious but it was not wise to predict early death for all cases, for in some such instances the patients condemned were yet alive.

Mr. Nettleship replied.

Dr. K. Grossmann (Liverpool) read a paper on

The Mechanism of Accommodation.

He demonstrated by lantern slides the observations made as to the influence of the instillation of strong solutions of eserine in the case of a young man whose eyes presented the conditions of aniridia and fine anterior and posterior polar opacities, the bulk of the lens substance being quite clear. The eyes were hypermetropic to + 7D.; there was some corneal astigmatism. By careful measurement he was able to demonstrate changes of shape and position of the lens on using eserine; the diameter was diminished by two millimetres and the thickness at the centre by 1·4 millimetres; there was an increase of spherical aberration and the lens moved upwards and inwards. He considered that these observations supported the theory of accommodation propounded by Tscherning.

Mr. Bishop Harman said that he did not under-estimate the interest of the case, but he thought that it was a little dangerous to utilise such observations as these in support of a theory relating to such an intricate phenomenon occurring in healthy well-developed eyes; the eyes on which Dr. Grossmann had made his observations were distinctly abnormal; there were aniridia and cataracts and the change of position of the lenses on the instillation of the eserine seemed to him to indicate that there was also some deficiency of the suspensory ligament.

Mr. Silcock and Mr. Nettleship also asked questions concerning the case.

Mr. W. A. Hancock (London) and Mr. W. T. Lister (London) communicated a paper on

Some Rare Epithelial Tumours of the Conjunctiva.

In all they had observed four cases, two in young subjects and two in adults; the conditions were of varying duration, one being as long continued as ten years while another was first seen after three months' growth. Their position differed in each case. The affected portions had been excised and the tissue had been examined histologically. Mr. Hancock and Mr. Lister showed lantern slides of the sections. The thickenings were seen to be due to a simple hypertrophy of the epithelial layer. There was no evidence that they were in the nature of dermoids, they certainly were not malignant, and there was no suggestion of a xerosis formation. In one case only there was a history of injury preceding the formation. They noted that similar epithelial plaques had been described by French authors.

Mr. Stephenson read a paper on

Interstitial Keratitis in Acquired Syphilis.

He recognised two varieties of corneal affections in syphilis: (1) general parenchymatous keratitis; and (2) the "keratitis punctata" due to a specific infiltration of the interstitial substance—a localised gummatous condition. He narrated several cases of the conditions described by others and one that had recently come under his observation. The consensus of observation was that the affection was most commonly unilateral and that it readily responded to mercurial treatment. He thought that a fair number of cases of interstitial keratitis in young children might be more correctly ascribed to a mild acquired taint rather than to the congenital. As regards the position of the manifestation with relation to the general course of the disease he thought that it was distinctly tertiary, an indication which was supported by the common association of choroiditis. It had been said that vascularisation of the cornea was not so common in the acquired form as in the congenital; this was not wholly his experience.

Mr. C. Devereux Marshall (London) mentioned a case which had come under his notice where the choroid was seriously and first affected, the keratitis being much later.

Mr. Stephenson replied.

Mr. Doyne read a paper on the

Treatment of Atrophic Retinæ with Retinal Extract.

His first idea in attempting this form of treatment was the possibility of supplying the diseased retina with a supply of food likely to be useful to it; the results of his experimental use of the extract on cases was such that he was now inclined to think that the retina contained some active principle which had an influence upon its nutrition. He insisted on the necessity of using the fresh glycerine extract; extracts of stale eyes he had found to be useless. There was some difficulty at present in getting the eyes, especially as the tentative dose was from six to ten fresh eyes daily. He confessed his willingness to ignore any effects produced in cases of hysterical amblyopia, for such cases were notoriously easy to treat by any suggestive and impressive procedure. He relied upon the results obtained in retinitis pigmentosa (five cases), in every one of which real and distinct improvement was found, and in toxic amblyopia (four cases) in which he considered the improvement in visual acuity to be more speedy than that following ordinary treatment.

Mr. Stephenson said that he had made use of this treatment in one case of tobacco amblyopia with what he considered to be important results. He suggested the use of the extract by subconjunctival injection.

Mr. Nettleship wished to point out that sufficient emphasis had not been laid on the condition of the tobacco amblyopia which had been treated. Acute cases did normally recover quickly. He did not wish to appear hypercritical towards a possibly valuable mode of treatment, but in one of the cases quoted by Mr. Doyne he had not been able to convince himself that there had been an appreciable improvement.

Dr. F. W. Edridge-Green (London) said that after his investigation into the visual purple of the eye he had tried to prepare an extract of this substance which might be used medicinally; he had not succeeded. He thought that such a mode of medication as attempted by Mr. Doyne was both possible and physiological.

Dr. Darier said that he had attempted several modes of such treatment some years ago after the publication of Brown-Séquard's work. He had injected various ocular extracts subconjunctivally and he had obtained in some cases some improvements, but such possible improvements were quite transitory. Further, he had had similar transitory benefits following the subconjunctival injection of various iron salts. He confessed that he was surprised to hear of Mr. Doyne's successful results by ingestion by the mouth when direct local applications had failed.

Mr. Doyne replied. He said he was hopeful that the matter would be taken up and given a fair and exhaustive trial.

Tests for Colour Blindness.

Dr. Edridge-Green brought forward the following motion:—

> That the council be requested to give effect to the resolution passed by this section last year that a colour-vision committee be appointed to recommend an efficient test for colour blindness.

He said that in the experience of many the present official tests were inefficient; very many varieties of colour blindness escaped detection, whilst some perfectly normal folk were rejected by it. Several such cases had been recently published.

Mr. W. M. Beaumont (Bath) thought that the matter ought to be taken up by some efficient body so that the two tests—that of Holmgren as now used and the test put forward by Dr. Edridge-Green—might be fairly considered.

The President put the motion to the meeting and it was agreed to without dissent.

DISEASES OF CHILDREN.

Wednesday, July 29th.

The Pathology and Treatment of Chorea.

Mr. Arbuthnot Lane, the President, was in the chair.

Dr. D. B. Lees (London) opened this discussion, remarking in the first place on the inadequacy and incorrectness of the term "chorea," inadequate because the disease was not merely muscular and incorrect because the lesion did not manifest itself in purely rhythmic movements and certainly not in dancing displays. The muscles most markedly under voluntary control were those most decidedly affected. Hence the muscles of the face, the tongue, and the hands were more perceptibly involved than those of the trunk and lower limbs, while those of respiration might suffer and that of the heart escape. He therefore thought that chorea must be considered as a disorder of the brain and particularly of the motor area. But there would appear to be in some instances an implication of the purely mental functions, as evidenced by the emotional and other similar manifestations shown by the young sufferers. There seemed, possibly, to be an overflowing of the impulses to the speech centre to the motor centres, with the result that the child when asked a question would answer as it were by primary choreic movements of the hands and facial muscles. The motor centres were not only irritable but were also actually weak—in fact, true paresis was by no means infrequently present. In some instances speech might be actually lost from possible involvement of the laryngeal muscles and not recovered for many months. It was interesting to note that even a kindly question might induce an emotional storm, with a downpour of tears, but no verbal reply. Marked anæsthesia was but seldom a symptom of chorea. An actual affection of the spinal cord or of the peripheral nerves might possibly be in evidence, as witnessed by occasional increase in the knee-jerks, in flying neuralgic pains, in the rare optic neuritis, and the accompanying constipation. In chorea what was most prominent seemed to be a disorder of the whole cerebral centres and in some cases possibly of the entire nervous system. But this lesion had the peculiarity of not being destructive—in fact, it was usually completely recovered from. Was it not, then, of the nature of a toxæmia, though probably not a toxæmia pure and simple, owing to its very localised effect in many cases? The relationship, to his mind, of chorea to rheumatism became more and more evident the closer the phenomena of the two diseases were examined. He believed that much could be learned from a closer attention to statistics bearing on the after-history of children who not having had rheumatism previously to an attack of chorea were afterwards smitten with it and he alluded to some significant figures in this relation obtained by Dr. F. E. Batten. Much importance must be attached to the recent valuable researches of Dr. F. J. Poynton and Dr. A. Paine into the bacteriology of rheumatism and their bearing upon chorea. It must now be acknowledged that there was a distinctive evidence of a morbid blood-state in chorea. There was the same also in rheumatism and any of the manifestations of rheumatism might therefore occur along with chorea and, in fact, choreic movements might in reality be the first symptom of rheumatism and rheumatism should be suspected in every case. The exhibition of anti-rheumatic modes of treatment had an undoubted success in acute chorea, provided they were vigorously pushed. Large and frequent doses of salicylates were required. The supposed depressant action on the heart muscle was in reality due to acute rheumatic dilatation of that organ and the drug was in no way responsible for it. Chronic cases were naturally not so markedly influenced by salicylates and probably because the motor centres might remain unduly excitable long after the action of the micro-organisms had ceased. Yet even in these cases salicylates were of decided service, as also were other remedies, such as arsenic, antipyrin, and ergot. He was certain that every case of chorea should be kept in bed in its early stages and treated exactly as for acute rheumatism, when distinct improvement would soon manifest itself.

Dr. H. Ashby (Manchester) felt that Dr. Lees had unduly exaggerated the connexion of rheumatism with chorea and therefore he was perhaps too sanguine in the results of treatment by those drugs which were of such great service in true rheumatism.

Dr. Theodore Fisher (Clifton) was convinced of the not uncommon association of cardiac manifestations in the course of chorea and brought forward statistics which bore out his contention.

Dr. W. Ewart (London) also drew attention to distinct cardiac lesions occurring in choreic patients and mentioned specific instances of the same.

Dr. G. J. Crawford Thomson (London) questioned the advisability and utility of large doses of salicylates.

Dr. F. J. POYNTON (London) drew attention to what he believed was an important factor in the production of the choreic movements—namely, the affection of the pia mater, induced probably by the toxin present in these cases.

Dr. E. CAUTLEY (London) thought that the almost, if not entire, absence of hyperpyrexia in choreic cases was an argument against the rheumatic origin of the disease.

Dr. M. O'SULLIVAN (Dublin) read a paper on the Complications, Course, and Treatment of Chorea, based on the careful observation of 54 cases. In many there was a distinct traumatic history. In no case were choreic movements the result of imitation. Mitral regurgitation was not infrequent as a cardiac complication. He had been much struck by the large and sometimes flabby condition of the patients' tongues. Cardiac mischief was most frequent in recurrent cases. With regard to the condition of the superficial and the deep reflexes in cases of chorea, in some both were exaggerated, in others the deep reflexes were well marked while the superficial were absent, and in others the superficial were well pronounced while the deep were wanting, and still more rarely both sets might be absent. The treatment adopted had been chiefly prolonged rest of mind and body, while arsenic was used as the best drug. Salicylate of sodium was given as a preliminary in cases with rheumatic symptoms.

Dr. G. CARPENTER (London) and Dr. J. R. LOGAN (Liverpool) took part in the further discussion and Dr. LEES briefly replied, stating that he was so convinced from his actual experience of the value of salicylates in the treatment of chorea that he regarded them in the light of a specific for the disease.

The Relation of the Thymus Gland to Marasmus.

Professor RUHRAH (Baltimore, U.S.A.) said that there were two forms of atrophy of the thymus gland, primary and secondary. The organ had an undoubted relationship to nutrition. In a large number of fatal cases of marasmus in infants he had never failed to find what appeared to be primary atrophy of the thymus.—Dr. POYNTON, Dr. ASHBY, Dr. EWART, Dr. LEES, Dr. CARPENTER, Dr. R. B. MCVITTIE (Dublin), Dr. FISHER, Dr. LOGAN, and Dr. C. PINKERTON (Southport) took part in the discussion.

Note on the Age for Operating in Cleft Palate.

Mr. R. W. MURRAY (Liverpool) read a note on this subject. He said that the chief object for which such an operation was performed was that the power of speech might thus be rendered more perfect than it would otherwise be. At the same time he drew attention to the fact that the defect in articulation in these cases was not certainly due to the cleft of the palate but was in large measure due to the imperfect development of the nasal chambers. If the bones of the hard palate were involved the subsequent power of speech would never be perfect, even though an operation had been successfully performed during infancy. If, on the other hand, the soft palate alone was involved, articulation might subsequently be perfect. He drew special attention to the great importance of closing the cleft during the first two years of life and within this age limit the later the operation was performed the better.

The PRESIDENT pointed out that the development of the naso-pharynx must be encouraged as much as possible to induce correct speech and the sooner the cleft was closed the better. Therefore the earlier the operation was performed the more satisfactory was the result. In some cases he advocated operation even within a few days of birth.

Dr. GARROD THOMAS (Newport) supported the President in his opinion that an early operation should be undertaken.

Dr H. ASHBY (Manchester) pointed out that many a case of cleft palate succumbed after operation or even without operation owing to some concomitant brain deficiency.

THURSDAY, JULY 30TH.

Congenital Dislocation of the Hip.

Mr. F. F. BURGHARD (London) opened this discussion with a prefatory account of the changes usually met with in cases of congenital dislocation at various periods of life, specially referring to the rôle of each in preventing the reduction of the dislocation. The deficiency in the acetabulum favoured reluxation; the changes in the capsule—especially the anterior portion—opposed the return of the head of the bone into the acetabulum; the alteration in the angle of inclination of the neck to the shaft of the femur and the rotation of the long axis of the neck upon the vertical axis of the shaft were also changes of practical importance. He then described the different forms of congenital dislocation met with clinically and gave a short description of the methods at present in vogue for the treatment of this affection with regard to reduction of the dislocation by the method termed the "Hoffa-Lorenz operation." He thought that risk of ankylosis followed the extensive alterations produced in the articular surfaces, while the difficulty of obtaining a true radical or anatomical cure by Lorenz's bloodless method could be demonstrated by radiography. An open operation not involving interference with the conformation of the articular surfaces offered better chances.

Mr. ROBERT JONES (Liverpool) believed that more than one way existed for the cure of congenital dislocation of the hip and that the same method would not suit all cases. He thought that more good would come from a study of the causes of failure than from the most carefully compiled statistics. For years they had tried methods which had yielded an occasional success, such as extension and abduction in an abduction frame, osteotomy of the neck to correct anteversion, manipulations for reductions, and various forms of operation procedure. Neither the Hoffa nor the Lorenz modification appealed to him as stripping a joint of its cartilage and whittling the head of the former directly made for an ankylosing arthrodesis. The essential difference between the methods of Paci and Lorenz was in the recognition by Lorenz of the rudimentary character of the acetabulum and the necessity of enlarging it by direct pressure of bone. In support of the probability of this occurring Mr. Jones related that in a lad, aged 17 years, in whom he exsected the head of the femur for a traumatic dislocation he found an excellent attempt at the formation of an articulation. Until the visit of Lorenz he had no idea of the thoroughness of his manipulations and he at once saw why so many failures had occurred in this country. Since his visit Mr. Jones had operated on 38 cases, 34 of which were reduced as confirmed by palpation and x ray photographs, most of which were shown at the meeting. In four cases the neck of the femur was fractured and the shafts were transposed anteriorly. These were the only complications and with an increase of experience he thought should not occur. The causes of failure in reduction were fold of the capsule between the acetabulum and the head of the femur, sometimes constriction of the capsule, the importance of which was overrated, anteversion of the neck, and instability of the articulation due either to faulty head or rudimentary acetabulum. Of immense clinical importance was the question, "Can these defects be recognised clinically?" In reply he thought that on completion of reduction the surgeon could tell whether it would be permanent or not. If the hip in the act of being reduced gave the sensation experienced in the reduction of a traumatic case and if there were stability after reduction the prospects were good. Failure might safely be predicted when the femur slipped out of joint on the slightest provocation. In this last variety exploratory incision was called for to correct soft structure obstruction and to correct anteversion of the femoral neck. Anteversion could be diagnosed by radiography as well as by palpation. If operation were done Mr. Jones strongly advocated incision while the dislocation was reduced and if anteversion existed the performance of osteotomy of the shaft of the femur, the neck being held in position, as recommended by Schede and Bradford. He agreed with Mr. Burghard that it was best not to denude the cartilage, but in the worst cases, where operation was most called for on account of anatomical misfits, how was the head to be retained short of excavation? Mr. Jones, in view of the diverse opinions, intended to persevere with the Lorenz method as a routine, operating only in exceptional cases and after a sufficient lapse of time, and forming his own conclusions with regard to the final results.

LARYNGOLOGY AND OTOLOGY.

WEDNESDAY, JULY 29TH.

Dr. PATRICK WATSON WILLIAMS (Bristol), the President, delivered a short address on

The Position of Laryngology and Otology in the Medical Student's Curriculum.

After extending a very cordial welcome to the distinguished *confrères* who, in response to an invitation, had come from afar to take part in the work of the section, the President spoke of the necessity for the more systematic training of medical students in the clinical examination of the nose, the throat, and the ear, so that every qualified practitioner might be familiar with at least their commoner diseases and be able to interpret those phenomena which in their pathological significance directly bore on general

as an aid to

less valuable

on of a vocal cord paresis or paralysis often proved invaluable in the early diagnosis of central nerve disease, such as tabes dorsalis or bulbar paralysis, while every laryngologist knew full well that the larynx frequently yielded the one and only definite physical sign pointing to the existence of an intrathoracic aneurysm or other less common form of intrathoracic tumour. The distinction between a simple laryngitis and paresis of an otherwise healthy vocal cord was not a difficult matter and yet from want of a little familiarity with the laryngoscope it was often enough beyond the ken of the young practitioner. Therapeutical success in medicine depended especially on the recognition of serious disease in its earlier and more tractable stages. They were no longer content to await the development of the grosser

laryngeal tuberculosis before

adopting measures for its arre

realise the possible clinical import of simple hoarseness and should have sufficient knowledge of the larynx to be put on his guard ere the thickening of a cord or the localised tumefaction on a vocal process or in the interarytenoid fold had either spread locally or had masked the existence of an early pulmonary lesion till it progressed beyond the possibility of cure. Speaking of the radical extirpation of cancer he deplored the lamentable number of cases that passed beyond the hope of relief simply for want of earlier diagnosis. He went on to say that at the medical examinatio n for entry into the navy and army the teeth were carefully inspected. Many candidates were thrown out for some error of refraction that could be remedied by wearing spectacles or for some defect in chest measurement of little importance in after life, and so forth, yet unless the candidate was obviously deaf the existence of serious aural disease might escape observation. Quite recently a young gentleman directly after passing his medical examination for the army had consulted him on account of deafness which had been noticed for six or seven years. He had nerve deafness and could not hear the watch on contact on one side, whilst the hearing on *the other side was only $\frac{1}{10}$ths of the normal. He had touched* on one or two of the more striking points to show how essential some elementary knowledge of laryngology was in general practice and to support his plea that it should no

whether he attended

uate teaching was an

nvaluable as a means of extending the practitioner's knowledge of all the special and higher branches of medicine and surgery it was beyond the reach of many medical men and therefore it should not be relied upon as the chief, if not the only, means of obtaining elementary practice in the treatment of any regional diseases.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 29TH.

Staff Surgeon **J. FALCONER HALL** communicated a paper on

The Water-supply for Landing Parties and Naval Brigades.

Owing to the many sudden and unexpected calls on the navy for landing parties in all parts of the world it was necessary to be always ready to meet such emergencies and the water-supply for a landing party was of vital importance to its success. In every landing party a certain number of men under a petty officer should be told off to attend to the water-supply and their sole duty should be to attend to its purification and transport. The men landed must be taught what had aptly been called "water discipline." It was quite easy to tell the men the risks they ran from drinking impure water, but it was much more difficult to prevent them doing so and to get them to have a little patience until a sound supply was procured. For drinking and cooking six pints per day ought to be the minimum and in hot climates this should be increased to at least nine pints and transport should be arranged to allow this quantity. Distillation was undoubtedly the best method of purifying water but this

e next

of the

The

chemical methods were practically useless, as for the most part they could not destroy active bacilli and were too complicated for the men to understand.

Fleet Surgeon **JOHN LLOYD THOMAS**, R.N., read a paper entitled

A Surgeon's Notes with the Naval Brigade in China.

The paper gave an account of the writer's experience with the Naval Brigade which formed part of the China field force for the relief of the Pekin Legation in 1900. The Naval Brigade numbered 535 officers and men and the proportion of sickness was 15 per cent. of the total strength, or 2·21 men sick per diem. Of these 9 per cent. were bowel complaints. There were five cases of enteric fever, one ending fatally. There were 12 cases of dysentery, with one death. The personal observation of the author went to prove that the trouble was due in nearly all cases to drinking bad water. It was almost impossible to control the impatience and carelessness of the men in drinking water and their choice usually was the handiest water. There were 31 cases of diarrhœa, the symptoms being of sudden onset, beginning with abdominal

The condition took the

tion and he was disposed

mechanical irritation of the mucous surfaces of the stomach and intestines and the presence of solid matters which had been ingested in a condition of suspension in various vehicles. The causes of nearly all these cases were ascribed first to water and secondly to food. The 31 cases did not represent the full number of those who suffered from this affliction; nearly everyone suffered from the "gripes," with six or seven stools during the 24 hours. Simple remedies sufficed to cure the complaint, whilst bland and nourishing food was given to replenish the system. If the cause of the affection was accepted as a purely mechanical and irritant one then the remedy should be to restrict the drinking water to that which had been carefully filtered. 12 cases of sunstroke were placed on the sick list because the men were incapacitated for an appreciable period. These did not include transient cases. Of the total cases two ended fatally. The treatment was water by the stomach and to the skin. When close to the river the patient was partially immersed or the head and body douched on the bank, with the legs dangling in the stream. This generally resulted in speedy recovery and the first sign of improvement was the desire for drink. The immediate after-treatment consisted of simple bland restoratives.

Lieutenant-Colonel **H. G. HATHAWAY**, R.A.M.C., communicated a paper entitled

Some Notes on a Mounted Bearer Company.

The author described a cart which he had invented, consisting of a light platform on strong springs over four wheels, the sides of the cart hinging down arranged after the fashion of an Irish car. The cart carried six sitting patients, three on each side, or two lying-down patients on stretchers. After describing the detachment of five men required for the service of these carts the author concluded by stating that it was unnecessary to have mounted bearer companies established in peace time, it being sufficient in his opinion to keep enough men in each squadron of cavalry for two such cart detachments always thoroughly instructed in first-aid to the wounded. Beyond that and the ability to ride nothing more was expected of them because they handed their patients over to the field hospitals for nursing at the first opportunity. For that reason it was not needful to employ men of the Royal Army Medical Corps on mounted bearer company duty.

In the discussion which followed on the three papers Lieutenant-Colonel **M. W. H. RUSSELL**, R.A.M.C., pointed out that care in regard to the drinking water was not an entirely new procedure on field service and detailed the routine followed in the Nile Expedition of 1884–85.

Deputy Inspector-General **H. M. ELLIS**, R.N., said that in regard to the water discipline of troops it was impossible for civilians who had never felt the stress of battle to realise the overwhelming temptation that came over troops when they felt that they were almost dying from thirst.

Surgeon-Major **J. ARNALLT JONES** (Aberavon) speaking as a volunteer surgeon, wished to congratulate Fleet-Surgeon Thomas on his paper.

Surgeon-General **G. J. H. EVATT**, R.A.M.C., spoke of the American system of extra food supply in addition to rations in the field.

Dr. H. E. L. CANNEY observed that in regard to the water-supply it would have been far easier to carry out the purification of water with the rapid sterilisers he had proposed to be used.

THURSDAY, JULY 30TH.

Surgeon-Captain G. ARBOUR STEPHENS (3rd Glamorgan Rifle Volunteers) read a paper entitled

Poverty of Attraction for Men to become Stretcher-bearers and the Consequent Inefficiency of that Section.

The value of the medical officer, he said, depended upon the material at his disposal, for however good he might be from a professional point of view without the needful assistance he was helpless. He stated that the volunteer regimental stretcher-bearers were an irregular squad of the most incompetent men ever detailed off for such work. That was the result of the absurdity of the system which prevailed and not the fault of the men. From each company two men were told off for ambulance work and each company officer, naturally retaining his best men, detailed for ambulance work the two most inefficient men he had. These men the medical officer was supposed to educate in a course of 12 lessons in anatomy, physiology, minor surgery, stretcher drill, and nursing. Good men would scarcely be considered very competent at the end of such a course and consequently the stretcher section was of absolutely no use whatever. There were about 223 volunteer regiments which gave a total volunteer ambulance strength of 3568 men, and this was in his opinion a sheer waste of red and blue serge. The author concluded by asking what there was to attract good men for the stretcher section? It was always to the rear of the regiment, the last into camp, and the last to have quarters allotted to it. The section received neither thanks nor prizes and good results could be hardly expected.

Brigade-Surgeon-Lieutenant-Colonel P. G. GILES (Welsh Border Brigade) communicated a paper entitled

Training Ambulance Men of Yeomanry.

He considered that difficulties would arise until some suitable means of removing a wounded yeoman was established. It had occurred to him that the best method would be a light ambulance cart near the ground that would accommodate itself to the movements of the horse without affecting the comfort of the patient and he described such an ambulance cart with an oblong hollow steel frame divided into three compartments In his opinion the transport of wounded men of mounted troops by means of riding supported either by another trooper or by means of straps and cords was very slow and unsatisfactory. Panniers were exceedingly difficult to load and really required two patients to balance properly. The method of carrying the wounded man in front of another trooper might be suitable for Victoria Cross competitions and had often been of use, but it was certainly unworthy of a place in the transport of the twentieth century.

Captain WILLIAM SHEEN, R.A.M.C. (Volunteers), read a paper entitled

Suggestions regarding the Personnel, Equipment, and Training of Medical Units attached to Volunteer Infantry Brigades.

He advocated that the medical unit attached to a volunteer infantry brigade should combine the functions of a bearer company and field hospital and this he believed was considered by many to be the best arrangement for the regular Royal Army Medical Corps. For such a unit he suggested the title of "Field Medical Company." A most useful article of equipment for a volunteer medical unit was a combined wagon and tortoise tent. He regarded as an essential improvement of the army ambulance wagon that it should be made to carry four patients lying down on stretchers. In training a volunteer medical unit the manual for the Royal Army Medical Corps should be looked upon as a guide and its drill varied to suit circumstances. He considered that far too much stress had been laid on the application of tourniquets. In not one of 342 cases of bullet and shell wounds admitted off the field into the Imperial Yeomanry Field Hospital was a tourniquet required. The author concluded by giving a short sketch of a typical Saturday afternoon field day for a medical unit.

In the discussion on the three papers which followed Mr. J. W. DAVIES (West Cross) said that proper instruction could only be carried out with the aid of a sergeant-instructor.

Surgeon-Captain A. E. LARKING (Folkestone) said that the only way to get together a good stretcher squad was to enlist men specially for ambulance work. He thought sooner or later that it would be found necessary to pay regimental medical officers on account of the expense entailed.

Surgeon-General EVATT said it had been decided that volunteer infantry brigade bearer companies were not Royal Army Medical Corps Volunteers.

Surgeon-General H. S. MUIR, C.B., (London) spoke of the efficiency of the Manchester Royal Army Medical Corps Volunteers, which corps he had had the opportunity of watching when principal medical officer of the North-West District a few years ago.

Surgeon-Major JONES said that the position of the volunteer regimental bearers was unsatisfactory. To enlist men directly into bearer sections meant a heavy tax on the purse of the medical officer.

Dr. CANNEY thought that the country should no longer make heavy financial demands on civilian medical men. He suggested that a commission should be formed representing volunteer and regular forces to advise the country on the point.

Captain SHEEN, in replying, said he was surprised to hear from Surgeon-General Evatt that volunteer infantry brigade bearer companies were not Royal Army Medical Corps volunteers. The men of the Welsh Volunteer Infantry Brigade bearer company were supplied with shoulder-straps bearing that designation, but these had recently been changed to straps bearing the lettering, "R.A.M.C., Welsh V."

Surgeon-Captain STEPHENS said that Surgeon-General Evatt had stated that if volunteer medical officers did their duty they would not court popularity with their combatant *confrères* but would reject a large number of men. He informed Surgeon-General Evatt that if that course were followed no volunteer regiment would be up to strength and the chance of getting regimental bearers would be reduced to a minimum.

FRIDAY, JULY 31ST.

Surgeon-General EVATT gave an address on

War Work.

His remarks on the military medical services constituted a sketch of the evolution of the regular, militia, and volunteer medical services in peace and war from the Crimean period through the unification period up to the present day, with suggestions as to the future developments of the military medical service in all its branches.

Surgeon-Major JONES referred to the valuable services rendered to volunteer medical aid by Surgeon-General Evatt, especially through his inducing the students of the great medical schools to join the volunteer bearer companies.

Inspector-General H. C. WOODS, C.V.O., C.B., R.N., in the course of his remarks informed those present that a scheme had been prepared for forming a reserve force of civilian medical officers for the Naval Reserve.

THE ANNUAL MUSEUM.

III.—SANITARY APPLIANCES, DISINFECTANTS, &c.

Sanitary appliances were represented chiefly in disinfectants, filters, stoves, special clothing, and sanitary ware. The Pure Enamel Bath Co., Limited, of Imperial Works, Bromley-by-Bow, London, E., exhibited two models of baths enamelled with a beautiful porcelain glaze. We have already shown that this glaze is free from lead and all materials susceptible to the action of sulphur baths or other medicated baths. A series of samples was exhibited showing the permanency of the enamel under tests including even the trial of alkalies and acids, hot and cold sea water, strong saline water, sulphur water, carbolic acid, effervescing baths, sulphuretted hydrogen water, and other mixtures employed in balneo-therapeutic practice. A specially high resistant enamel which was proof against acids and alkalies alike was also shown. The process is inexpensive and the result is an enamel amalgamated, so to speak, with the iron of the ordinary cast-iron bath in such a satisfactory way as to present the appearance of a porcelain bath. The gloss is good and the colour is pure. Close by Messrs. John Legg and Sons, engineers, of Swansea, exhibited a hot-water calorifier. This provides for a circulation of clean hot-water through a building already fitted with a hot-water installation. It consists of an iron cylinder through which the circulation of the ordinary hot-water-supply is maintained. In this cylinder is contained a hollow copper cone connected with distributing pipes The cone and the water inside it are heated by the water in the iron cylinder Circulation is readily established by means of an inlet and outlet pipe In a word, *the calorifier is a secondary heating apparatus in which the* heating of the water is effected by the hot water of the primary hot-water apparatus In this way water is not drawn off direct from the boiler The same firm show a hot-water radiator which can be swung like a gate from side to side in accordance with particular requirements Such an appliance is most useful in the hospital ward Messrs Slack and Brownlow of Abbey Hey, Gorton, near Manchester, exhibited a great variety of filters for high and low pressure and for domestic and industrial purposes The stoneware medium upon which the efficiency of this filter depends was reported upon by Dr G Sims Woodhead and Dr Cartwright Wood as impervious to germs when its working was kept under proper surveillance Messrs J Defries and Sons, Limited, of 146 and 147, Hound ditch, London, E C, showed a number of interesting hygienic appliances Amongst these were the Pasteur filters, a milk purifier, an appliance for sterilising excreta, and the equifex disinfectant appliances An excellent series of disinfectants in the form of powders, fluids, and soaps was presented to view on the stall of Messrs McDougall Brothers, of Manchester and 10, Mark lane, London, E C Amongst other things we noticed a bacteria powder and bacteria soap known as "kudo" which contain a very effective germicide. We are glad to note that this firm guarantee the bactericidal efficiency of their disinfectant preparations The izal disinfectants were shown in a number of forms at the stall of Messrs. Newton Chambers and Co, Limited, of Thorncliffe, near Sheffield Izal has been shown to be a very powerful germicide, outstripping, in fact, in this regard pure carbolic acid The Jeyes' Sanitary Compounds Co, Limited, of 64, Cannon street, London, E C, exhibited their well known creolin preparations as well as their disinfectant fluids, powder, and soap In addition to those described in this section there were a number of various disinfectant preparations shown by the firms which we mentioned last week as exhibiting drugs

IV.—SURGICAL INSTRUMENTS AND APPLIANCES

There was a good deal to be seen amongst the exhibits of the surgical instrument maker, including in particular some novel departures in regard to hospital outfits The exhibit of Messrs. Down Brothers, Limited, of 21, St. Thomas's street, London, S E, attracted considerable attention and consisted of a very large assortment of modern surgical instruments and a complete equipment of aseptic hospital furniture The exhibit was a somewhat comprehensive one and occupied a room to itself *Amongst other things shown was a portable* wooden operating table designed by Mr Jordan Lloyd The assortment of instruments exhibited by the Holborn Surgical Instrument Co, of 26, Thavies Inn, Holborn circus, London, E C, was an up to date one, comprising every kind of instrument used in modern surgery These included anæsthetic apparatus, gynæcological instruments, bone instruments, forceps, and so on The exhibit also of Messrs Mayer and Meltzer of 71, Great Portland street, London, W, attracted considerable interest It included hospital furniture, anæsthetic apparatus, and laryngological, rhinological, and aural instruments The electric lamp especially constructed for use in the theatre, ward, and consulting room should be mentioned as being of the most convenient description for the purpose (exploring cavities, &c) for which it is designed. Messrs Harry W Cox, Limited, of 9, 10, 11, Cursitor-street, Chancery lane, London, W C, exhibited a number of excellently designed electric appliances used in modern electro therapy, such as x ray apparatus and high frequency apparatus Messrs Arnold and Sons of West Smithfield, London, E C, showed a number of new surgical appliances, including some special applications of the electric light for the exploration of cavities Wood-wool preparations were the feature of the exhibit of the Sanitary Wood-wool Co Limited, of 26, Thavies Inn, Holborn-circus, London, E C This valuable antiseptic fabric has application in accouchement sheets surgical dressings, and vaccination pads. The patent appliances for the lame and the new support for flat foot of the O Connor Extension Co of 2, Bloomsbury-street, London, W C, are well and favourably known. The exhibit showed, moreover, that some new additions have been made in regard to improved appliances for accommodating weak or deformed feet. The Liverpool Lint Co of Mark street Mills, Netherfield road North, Liverpool, exhibited a variety of wools and lints for surgical use. Attention should be directed in particular to the "*impermiette*" bed *sheeting, which may* be washed *with boiling soap*-and *water* and *sterilised* without injury "Impermiette" is also described as a new substitute for jaconet Messrs George Gale and Sons, Limited, of Dominion Works, Birmingham, exhibited various forms of the Lawson Tait bedsteads which are well adapted for use in hospitals Electro therapeutic apparatus was shown by the Sanitas Electrical Company of 7A, Soho square, London, W Amongst these may be mentioned the latest appliances for the treatment of disease by light, by galvanism, and by high frequency currents Besides the Dowsing Radiant Heat and Light apparatus for the treatment of rheumatism and other diseases, the company of that name of 24, Budge row, Cannon street, London, E C, exhibited also the Scholder arthromotor, which is an ingeniously designed machine for applying mechano therapeutical and orthopædic treatment Apparatus for electrical treatment was also exhibited by the Electro Neurotone Company, Limited, of 26, Old Bond street, London, W, while Messrs Smith and Wade of 20, Baker street, London, W, showed the Wagner mica plate static machine which produces a current in an easy and convenient way that is especially adapted for the therapeutical application of electricity, as in x ray or high frequency work, and the production of ultra-violet light The same firm exhibited a multi nebuliser for producing exceedingly fine sprays The Longford Wire Co, of Warrington exhibited a number of bedsteads adapted for hospital use fitted with Wood's patent wire mattress Close by Messrs C Bellack and Co, of 12, March Arch, London, W, demonstrated vibration treatment by means of the Muschik vibrator Mr G H Zeal, of 82, Turnmill street London, E C, exhibited an admirable assortment of clinical thermometers, all designed to facilitate accuracy of observation The "repello" thermometer has already been described in THE LANCET The column of mercury, after an observation has been made, is brought back to its original level by simply pressing a flattened bulb at the top of the instrument. Mr N Bletchly, of 89, Northgate street, Gloucester, exhibited various designs of boots for abnormal conditions of the foot These included extension boots and shoes for shortened feet and legs, and for contracted heels, for club-foot and other deformities, as well as for gouty and rheumatic feet

V—MINERAL WATERS, BEVERAGES, &c

Natural mineral waters were somewhat in evidence this year, artificial waters being quite the exception Wales itself of course has several excellent mineral springs and amongst these is the remarkable sulphur water of Llanwrtyd The supply of water at this spa and health resort is abundant, whilst the amount of sulphuretted hydrogen contained in it exceeds any other water in Great Britain Specimens of the water in bottles were shown by the proprietors of the Dolecoed Spa, Llanwrtyd Wales A stall was devoted also to the exhibition of pictorial representations of the balneological practices carried out at the "Borough of Royal Leamington Spa" The authorities have spared no detail to make the royal pump room and bathing establishment equal in equipment socially as well as balneologically to continental health resorts. In a similar way photographs were shown of the important developments which have taken place at
Harrogate during recent ye.
mineral waters were shown
4, Stratford place Oxford str
naris water, exhibited specimens of the natural bitter water apenta, which is rich in the sulphates of magnesium and sodium. In addition to these natural mineral waters, the latter for medicinal purposes and the former an excellent adjunct for the table, specimens of the natural mineral water from the Johannis spring were exhibited. This water may be had also containing a definite added quantity of lithia or of potash Arabella, Limited, of 2A, Hay hill, Berkeley square, London, W, exhibited specimens of a natural mineral water belonging to the sulphated class. We have recently examined this water in THE LANCET laboratory and the results show that it contains the sulphates of soda and magnesia in desirable amount and ratio A curious point about this water is that in spite of its wealth of purgative salines it is not excessively bitter to the taste An excellent series of artificially aerated waters was shown by Camwal, Limited, Camwal Works, Bristol Illustrations were given of the methods adopted for insuring the purity and strength of the waters manufactured by this association.

VI.—PUBLICATIONS.

Publishers would appear to take continued interest in the exhibition and to regard it as a means of bringing modern publications to the notice of the profession. Amongst those who exhibited publications were Mr. Alfred R. Way of Swansea on behalf of Messrs. Cassell and Co., Limited, La Belle Sauvage, London, E.C.; Messrs. E. and J. Griffiths of High-street, Swansea, on behalf of Messrs. Macmillan and Co., London, and Messrs. Baillière, Tindall, and Cox of 8, Henrietta-street, Covent Garden, London, W.C.; Mr. H. K. Lewis of 136, Gower-street, London, W.C.; Messrs. W. B. Saunders and Co. of 9, Henrietta-street, Covent Garden, London, W.C.; and Messrs. Rebman, Limited of 129, Shaftesbury-avenue, Cambridge-circus, London, W.C.

VII.—MISCELLANEOUS.

Amongst the few exhibits of a miscellaneous character there was hardly one of strictly medical interest. In former years we have had occasion to describe under this heading a number of exhibits comprising motor-cars, carriages, and other objects of interest to medical men. The miscellaneous exhibits this year were, as far as we could see, of little medical interest at all and in some cases they were not in keeping with the general character of the museum.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

At a meeting of the council of the Metropolitan Hospital Sunday Fund which was held at the Mansion House on July 30th the report of the committee of distribution was passed, the payment of awards to hospitals and dispensaries was ordered, and an addition was made to the laws of the constitution. The report stated that

> The committee of distribution recommends awards to 209 institutions. The amount of collections, including interest from the Court of Chancery, to the present time is £60,900. The distribution of £58,386 11*s.* 8*d.* to 154 hospitals and to 56 dispensaries is recommended. This year 211 institutions, or seven more than last year, have made applications for grants from the funds. The committee is unable to recommend a grant this year to one hospital and one hospital was considered ineligible. In accordance with the resolution passed at the annual general meeting of constituents held at the Mansion House on Dec. 9th, 1902, the distribution committee has not included the outlay on repairs and improvements of buildings in arriving at the financial basis of each institution, so that the annual distribution will be wholly awarded for the "maintenance" of patients. The special attention of the committee of distribution has been directed to the constantly increasing expenditure of hospitals in the maintenance of patients. The average cost per week of each patient treated at 21 of the principal hospitals amounted to £1 16*s.* 6½*d.* in 1902. In 1897 the average was £1 13*s.* 1½*d.* In 1892 the average was £1 12*s.* 3*d.* Although at first sight the difference of 4*s.* 3½*d.* per week per occupied bed in these 21 hospitals does not seem very great, nevertheless it represents in these hospitals alone an increase of over £44,000 for a single year, *basing this calculation on the number* of beds occupied in the hospitals in question during the year 1902. In 1902 the cost per occupied bed per week varied between £1 1*s.* 3*d.* and £2 18*s.* 5*d.* in the hospitals referred to. While recognising the fact that the expense must necessarily have increased to some extent with the progress of scientific treatment and nursing the committee still thinks that the expense in some hospitals is higher than justified by these considerations. The committee has reduced the bases of award in 38 cases. Eleven deputations have attended the committee and after hearing their cases the final awards were determined. Their Majesties King Edward VII. and Queen Alexandra attended the Hospital Sunday service at St. Paul's Cathedral on Sunday afternoon, June 7th, on the understanding that the collections in the Cathedral on that Sunday would be for the "Metropolitan hospitals." It is satisfactory to state that the collections amounted to £5500. Mr. George Herring has again most liberally offered to give one-fourth to the amount collected in places of worship. The very inclement state of the weather on Hospital Sunday, June 14th, must have prevented many people from attending the services on that day, but it is gratifying to note that the amount so nearly approaches the collection of 1902 (Coronation year)—the record year of the Fund.

In the absence of the Lord Mayor Sir Sydney Waterlow, Vice-President of the Fund, took the chair and in moving the adoption of the report said that since the year 1872, when the Fund was founded, £1,239,933 had been collected and distributed. He thought that he was therefore justified in saying that the Fund was a success. The collection this year had been very satisfactory and he did not think that of all the 31 reports which he had had the pleasure of submitting to the council there had been one more satisfactory than that of 1903. More money had been collected in the churches and there was still more money to come in before the financial year closed. The collection had been increased in consequence of the attendance of the King and Queen at St. Paul's Cathedral and the confidence which His Majesty had in the administration of the Fund was shown by the fact that he had expressed his desire that the result of the offertory at St. Paul's Cathedral—namely, £5500—should be paid to the treasury of the Fund. This year there had been an increase in the number of contributing congregations. Collections were made at more than 200 places of worship and this showed, he thought, that the Fund rested on a solid basis which was never likely to be changed. He wished particularly to refer to the paragraph in the report which stated that the special attention of the committee of distribution had been directed to the constantly increasing expenditure of hospitals in the maintenance of patients. All the committee could do was to report on the matter and to leave it for consideration. It was difficult to determine the cost of out-patients, but it was desirable to have a conference of those interested in hospitals to consider the best method of arriving at some conclusion with regard to the matter, as the question materially affected estimates as to the cost of in-patients. He thought that the governors of hospitals should take into consideration the details of the cost per bed and see what a large sum could be saved if they could make a reduction of 1*s.* in the expenses of each bed. In conclusion, he remarked that Mr. George Herring, to whom they could never be too grateful, last year gave £11,575 towards the Fund and this year his contribution would be £11,600.

Prebendary Ridgeway, who seconded the adoption of the report, said that the churches which suffered least in regard to the falling-off of collections owing to the inclement weather on Hospital Sunday were those whose ministers took the trouble to bring the matter before their congregations prior to the date of the collection. At his church about £100 were lost owing to people who were not in church on account of the weather, but that deficit was more than made up by those who had had their attention called to Hospital Sunday beforehand. He therefore urged the importance of the clergy and ministers in all places of worship communicating with their congregations before the actual day of collection arrived.

Sir Henry Burdett drew attention to some of the figures in the report and said that he would like to know how the extra money had been distributed. As far as he could see it had not gone to dispensaries which were the oldest form of out-patient work and the most economical system of relief. Patients, too, were attended in their own homes and the members of the dispensary staff who might report sanitary defects to the health authorities thus became excellent hygienic ministers. Good was thus done quite apart from medical relief. He felt that the Fund had not done enough for the dispensaries.

Sir Sydney Waterlow said that no one could appreciate more than he did the work of the dispensaries and he should be glad if the committee could be authorised to deal more liberally with them, but the public subscribed to the Fund with the idea in their mind that the money which they gave would be given to hospitals.

Sir Edmund Hay Currie explained that the extra money had been given to those hospitals which were found to be the most economically conducted. Where the management of a hospital was not economical the basis of award was reduced and this had been done in 38 cases.

The report was then adopted.

On the motion of Archdeacon Sinclair, seconded by Mr. F. N. Norman, it was decided to add to Law IX. of the constitution, which reads—

> In the event of a congregational collection made on Hospital Sunday being given to a particular hospital, dispensary, or institution instead of being sent to the general fund the amount so sent shall be deducted from the grant made to that hospital, &c., and can in no case be included as forming part of the Fund—

The following:—

> In the further event of a particular hospital, dispensary, or institution fixing any day or days *in the week immediately preceding Hospital Sunday* in any year for the purpose of pressing the claims of such institution upon the public it shall be an instruction to the committee of distribution when determining the award to such institution to take into consideration the amount received from such an appeal and the loss, if any, resulting therefrom to this Fund.

Sir Stephen Mackenzie, Sir Sydney Waterlow, and Sir Henry Burdett took part in the discussion.

Mr. C. E. Tritton, M.P., moved a vote of thanks to Mr. George Herring "for his generous and continued interest in the Fund." This was seconded by the Rev. E. H. *Pearce* and carried with acclamation.

Votes of thanks were also passed to Sir Sydney Waterlow (chairman) and other members of the distribution committee, to the editors of newspapers, and to the Lord Mayor, who as president and treasurer of the Fund has devoted his valuable time to, and used his influence in the well-being of, the Fund.

THE LANCET.

LONDON: SATURDAY, AUGUST 8, 1903.

The Use of the Roentgen Rays in the Diagnosis of Pulmonary Disease.

THE accidental discovery of the x rays by Professor W. K. ROENTGEN of Würzburg towards the end of the year 1895 was soon followed by their application to medical and surgical uses in the diagnosis of injury and disease. The great advances which have been made in the production of these rays and their utilisation, more especially by the discovery of their action on a fluorescent screen composed of a layer of such a substance as barium platino-cyanide, have widened their sphere of usefulness to include not only diagnosis but also prognosis and treatment.

As early as 1896 Professor BOUCHARD applied them to the diagnosis of pulmonary disease and his observations have been confirmed and extended by a number of other observers, including Dr. HUGH WALSHAM in this country and Dr. F. H. WILLIAMS in America. In recent issues we have published two papers on this subject. The first of these is by Dr. J. F. HALLS DALLY[1] and comprises an account of the appearances of the normal chest and a critical study of the variations induced by pulmonary diseases. The second, by Dr. DAVID LAWSON and Mr. R HILL CROMBIE,[2] contains brief accounts of cases illustrating the use of the Roentgen rays in diagnosis, with reproductions of the radiographs or skiagrams obtained from them. Both these papers, affording as they do a useful *résumé* of the present methods of x-ray investigation in pulmonary disease, are of considerable interest and are obviously the outcome of a large practical experience of the subject. As in other departments of their use, the Roentgen rays can be utilised for diagnostic purposes in two ways: firstly, the so-called screen methods or radioscopic investigation, utilising the fluorescent properties of barium platino-cyanide under the influence of the rays, either in a dark room or by means of a specially contrived apparatus—the fluoroscope. The other method is the radiographic, in which the rays act upon a sensitive plate and a radiogram or skiagram is obtained on development and printing from the resulting negative. Comparing the value of the two methods most observers regard the radioscopic investigation as the more useful, since it is more rapid, more easy of application, and also allows the movements of the heart and the diaphragm to be directly observed, while in radiographic work, although a permanent record is obtained, yet if the exposure is at all prolonged some of the shadows which can be seen with the screen may be obliterated on the plate and are therefore not visible, and Dr. WILLIAMS in his book, "The Roentgen Rays in Medicine and Surgery," states that the record of some intrathoracic conditions by radiography, for example certain rapidly expansile aneurysms, cannot be hoped for until the instantaneous photography of the thorax is an accomplished fact. Dr. HALLS DALLY suggests a new nomenclature and draws a parallel between the results of x-ray investigation and the ordinary methods of physical examination; thus he would substitute the word "transradiancy" for translucency and this would correspond to normal resonance in percussion, brightness to hyper-resonance, faint shadow to impaired resonance, dense shadow to dulness, and opacity to absolute dulness. There are, however, certain shadows and lighter areas in the normal thorax of which cognisance must be taken and some of these are as yet imperfectly understood; thus in addition to the shadows produced by the ribs, the clavicles, and the scapulæ, and the well-known shadow of the heart and mediastinum, there are some faint and ill-defined streaks which Dr. HALLS DALLY calls the "pleuro-pericardial lines" and which he attributes to the junction of the parietal pleura with the mediastinum, while Dr. LAWSON and Mr. CROMBIE, adopting a suggestion of Professor D. J. CUNNINGHAM, regard them as due to the puckering of the outer edge of the pericardium during systole. The movements of the diaphragm can be observed by the radioscopic method and afford perhaps the most valuable information in the diagnosis of pulmonary disease by this means. Taking the average of a large number of normal cases Dr. HALLS DALLY finds that in quiet respiration the diaphragm moves half an inch on each side, but in maximum respiration the right side moves $2\frac{7}{8}$ inches and the left side $2\frac{5}{8}$ inches, apparently without the flattening which is usually described but with a bodily movement downwards called by Dr. WALSHAM "the piston movement."

So much for the normal appearances. In disease the chief departures from these, as might be expected, consist in the occurrence of shadows more or less dense where "transradiancy" or translucency should be observed, in diminished or altered movement of the diaphragm on one or both sides, and in alterations in the bony framework and its movements. It is claimed that the Roentgen rays may be of great use in the *diagnosis of pulmonary tuberculosis*, pneumonia, pleurisy with effusion, serous or purulent, gangrene of the lung, emphysema, and pneumothorax, but it is practically only in early pulmonary tuberculosis that the method at present seems likely to offer any information commensurate with the work entailed by its application. From the accounts published, not only in the two papers already referred to, but also by Dr. WILLIAMS in his book and by Dr. BONNET-LYON of Paris, it would seem that a lesion in the lung giving rise to no physical signs or only at most to some slight departure from the normal may yet give definite evidence of its presence by a diminished movement of the diaphragm or by some faint shadow at the site of the deposit, the former being the earlier, and according to the advocates of this method the earliest sign yet obtainable, and Dr. HALLS DALLY in his summary concludes that the Roentgen rays form an important adjunct to the other methods of physical examination and that by their means pulmonary tuberculosis can be diagnosed at an earlier stage than by any other means at our disposal. At the first part of these conclusions probably few would be disposed to cavil, but, after all, the ultimate test of the tuberculous nature of a pulmonary disease, as Dr. HALLS DALLY himself admits, can only be the discovery of the tubercle bacilli in the sputum, and although the early diagnosis of tuberculosis is a most important matter, and although the rays may render the inference of tuberculous deposit probable at an earlier period than other methods and so enable valuable time to be gained, yet even the rays in such early stages give no absolutely unequivocal indication. In other words, x-ray investigation, at present in an experimental stage, is a useful addition to other methods, more especially as an appeal in the case of certain difficult and doubtful cases, but that it can take a place as a routine procedure of examination of the chest is hardly possible at present. That it may do so when methods and apparatus are simplified is more than probable. In any case the study of the method, of its uses and its limitations, as in the two articles mentioned, is on all grounds to be commended.

---

[1] THE LANCET, June 27th, 1903, p. 1801.

[2] THE LANCET, July 25th, 1903, p. 212.

The Home Secretary and the So-called Anti-Vivisection Movement.

THE plain and well-worded rebuke recently administered by the Home Secretary, Mr. AKERS-DOUGLAS, to a deputation which came before him to protest against the increase of vivisection will be read with satisfaction by all who can take an unprejudiced view of the aims and methods of scientific progress. The deputation represented the Parliamentary Association of the British Union for the Abolition of Vivisection, and its objects were to ask for the total abolition of vivisection and to demonstrate the uselessness of looking for any genuine advance of medical science by vivisection. The first of these we imagine to be much easier of attainment than the second; anybody can ask for the moon, but not everybody can prove that the moon is made of cheese. It will be no light task for the Parliamentary Association of the British Union for the Abolition of Vivisection, or for any other body even with a longer title, to demonstrate the necessary futility of all experimental work on the lower animals; but it is fairly easy to show by internal evidence that no member of such a body will ever believe in a scientific advance made by steps which run contrary to the particular fads which govern his judgment. Anti-vivisectionists, as most other people of extreme views on one issue, are singularly blind to demonstrations of fact or to arguments of reason. Their gaze is fixed with such an intentness upon the one ideal that no rays of truth from surrounding objects or circumstances can reach the retina of their judgment. Their vision has no periphery at all. It is useless to argue with such that a man may be a physiologist and still retain the ordinary feelings of a human being towards the lower animals. They know better and will cruelly libel a number of educated men in support of their creed and in proof of the fine quality of their mercifulness.

A better instance of the singular way in which the judgment can be warped by violent opinions could hardly be forthcoming than that furnished by some remarks made by one of the speakers in the course of the interview between the deputation and Mr. AKERS-DOUGLAS. Sir JOHN ROLLESTON appears to have stated that "they had it on the highest authority that experiments on animals were useless to determine or direct the medical treatment of man and were generally misleading. It had been admitted by Sir FREDERICK TREVES that his experiments on animals had not been of service, for when he went out to South Africa and operated upon the soldiers the results obtained were quite different." What Sir JOHN ROLLESTON was driving at in this observation it is impossible to guess, but the juxtaposition has an almost childish quaintness. It would be nearly as sensible to say that the British soldier does not believe in roast beef since the war in South Africa because he found that his appetite was quite differently appeased there by rations of biltong. Sir FREDERICK TREVES has decisively rebutted the insinuation that he is opposed to vivisection, while another contention raised by the deputation also met with well-earned contradiction from the Home Secretary. The deputation pleaded for increase of inspectors under the Act and declared that at present inspectors are appointed by approved vivisectionists naturally inclined towards vivisection. Mr. AKERS-DOUGLAS contradicted this statement and showed that the inspectors are appointed by the Secretary of State and asserted that it was "not his practice, nor was it the practice of his predecessors, to go entirely into the ranks of one party or of the other for the election of inspectors." It must also be pointed out to the Parliamentary Association of the British Union for the Abolition of Vivisection that the Home Secretary's choice of individuals to serve as inspectors is somewhat limited when he has to look round for representatives of the antivivisection school of thought. The opponents to scientific progress are not important people numerically or intellectually, and do not offer, therefore, among their *personnel* much opportunity for the selection of inspectors under an Act of Parliament.

The deputation seems to have made but a slender effort in the only direction in which success would have been of any importance to their cause. They failed signally to show in any impressive way whatever that vivisection is of no use or that there is other good cause for its total abolition. That there is a certain mass of sentimental opposition to the practice of vivisection the deputation did, indeed, bear evidence. But evidence to this effect was not required. We are all aware of this sentimental opposition, and we are all in sympathy with it so far as it represents the humane desire to avoid cruelty towards the lower animals. Mr. AKERS-DOUGLAS'S reply was a model of reasonable support of scientific freedom, and furnished complete evidence that the Home Secretary is alive to those truths which so entirely escape the grasp of the anti-vivisectionist. He would, he said, neither introduce a Bill for the abolition of vivisection nor advise the Government to do so nor vote for such a Bill were it brought before Parliament. He maintained that the class of physiological and pathological work known as vivisection is an important aid to medical science and said that "however much they all disliked the incidental suffering which might follow experiments the result is justified in the well-being of the country at large." We trust that the reception of this deputation by Mr. Akers-Douglas may lead some of the sentimental upholders of antivivisection to consider the situation a little and to ask themselves whether all the wisdom and humanity in the country are confined to their own clique.

The King's Visit to Ireland.

The King's tour through Ireland, from his entrance at Kingstown on July 21st to his departure from Cork on August 1st, was a triumphant success. All who came into intimate contact with the King were charmed with his geniality and courtesy of manner. His kindly smile and gracious demeanour put everyone at his ease. Over and over again Edward the Seventh showed himself to be gifted with the utmost tact and with the most human sympathies. The Queen, who is such a universal favourite, won the hearts of the Irish by her grace, beauty, and kindly interest in suffering and poverty. The social and political bearings of this tour concern us in The Lancet to this extent, that as good citizens we desire earnestly to see peace and prosperity prevail in these islands, and we join with His Majesty in hoping that a brighter day is dawning upon Ireland. We feel with him, as he so admirably expresses it in his address "to my Irish people," that the realisation of this day will depend largely "upon the steady development of self-reliance and coöperation, upon better and more practical education, upon the growth of industrial and commercial enterprise, and upon that increase of mutual toleration and respect which the responsibility my Irish people now enjoy in the public administration of their local affairs is well fitted to teach."

The medical aspects of Their Majesties' extremely busy visit to Ireland are important. The King and Queen during their sojourn in Ireland made it very plain how much they are interested in hospitals and in the anxious work done by members of the medical profession. In Dublin Her Majesty went to the Hospital for the Dying, while in Belfast and in Derry the memory of gracious visits to the hospitals will long remain. In replying to the address presented to him, in opening the Royal Victoria Hospital, Belfast, His Majesty returned thanks on behalf of himself and the Queen for the opportunity given them of visiting the institution "which has for me a personal interest because of its association with the name of my beloved mother and after the proceedings of to-day with the memory of our ever to be lamented son." The King and Queen then most carefully inspected this new hospital and no one who was present will ever forget the simple but beautiful ceremony in the women's ward when Her Majesty named it the "Clarence," in affectionate remembrance of her son. We are in a position to record that Their Majesties regard the Royal Victoria Hospital, Belfast, "as one of the finest and most up-to-date hospitals they have visited." In laying the memorial stone of the new buildings of the Derry Infirmary, the King in reply to an address indicated very clearly his views as to the benefits of hospitals:—

> It has given the Queen and myself great pleasure to visit an institution devoted to the relief of the suffering poor of the city and county of Londonderry. I am pleased to hear that your Infirmary has been productive of so much benefit in the past and that the liberality of your fellow-citizens is enabling you to meet the growing requirements of surgical and medical science. There is no field in which public generosity can effect greater good than in bringing within the reach of those unable to procure it for themselves the means which modern science affords for the alleviation of suffering and the cure of disease. I may, in conclusion, say that it always affords me great gratification to be in any way instrumental in promoting the interests of institutions like yours.

The English Royal family have been famed for their appreciation of the medical profession. King Edward has in particular always shown the deepest sympathy with our calling, and his serious illnesses have intensified this feeling. During his recent visit to Ireland there were no people to whom he was more courteous than the members of the medical staff of the hospitals which he visited, while in the apportionment of honours in connexion with the Royal visit medical men have been generously treated.

If the pointed and practical observations that the King and the Queen made during their visits to hospitals, and the questions which they asked, showed what a thorough and specialised knowledge they have of hospital administration another special feature of this Royal visit to Ireland must not be forgotten. We refer to the great effort made by Their Majesties to know the surroundings of the poor. Their visits to the slums of Dublin and their close inspection of the peasants of Connemara will, we are sure, be turned to practical account in suggesting measures for improving the condition of the submerged population of the country. We look with confidence to far-reaching effects from the visit of the King and Queen to Ireland.

Annotations.

"Ne quid nimis."

CANCER RESEARCH.

The first annual meeting of the general committee of the Cancer Research Fund was held on July 30th in circumstances which were decidedly encouraging to the movement. In the unavoidable absence of H.R.H. the Prince of Wales, who is President of the Fund, the Prime Minister took the chair, and in reply to a vote of thanks delivered an admirable address, showing genuine appreciation of the magnitude and the difficulties of the task which the committee is undertaking. No precisely similar research has, perhaps, ever been attempted, while the mere fact of the project being favourably regarded in the highest quarters, both social and political, shows that the public has become of late more conversant with the scientific views and possibilities of medicine. The public now recognises that important improvements are gradually being made in the diagnosis and treatment of disease and that in many directions old rules of thumb are being superseded by logical processes of therapy founded upon exhaustive methods of research. But the task that lies before the committee intrusted with the prosecution of research into the cause of cancer differs from all previous collective researches into the natural history or pathology of a disease inasmuch as its object is the solving of a problem about which nothing definite is known save that up to the present time the efforts of the foremost authorities in anatomy, histology, and micro-biology have failed to cast any light on it. Hence the appropriateness of Mr. Balfour's warning that immediate results can hardly be expected. Sir William S. Church had, indeed, already indicated as much by pointing out that the committee intended to undertake cattle-breeding on a small scale with the view of ascertaining how far the malignant diseases of domestic animals were transmissible. The operations of the committee will therefore not be confined to a restricted area, but will cover a wide field, a distribution of work which we have already advocated[1] when commenting on the scheme whilst it was still in its initial stage. There is little room for hoping that any important addition to our present knowledge of the pathology of cancer can be made without the exercise of much patient application on the part of highly trained workers, dextrous in utilising portions of the work of their predecessors. The most important addition made of late years to the instrumental resources of the surgeon was the discovery of the x rays by Professor Roentgen in the vicinity of tubes of high vacuum traversed by a current of electricity; these vacuum tubes, however, were by no means new, they had already been used for more than 15 years by Sir William Crookes and were universally known by his name. Similarly it may be that the solution of the problem of the origin of malignant disease lies close to our hands, perhaps half-discovered. But, on the other hand, the absence of any certainty in any direction may make the process of research a very long one; all sorts of clues may have to be followed, and the experiences of numberless observers to be codified, before the right track is found. It is well that the public should understand this and lay to heart Mr. Balfour's warning against impatience. The financial position of the fund decidedly requires strengthening and the total amount —some £43,000—still wanting for the completion of the endowment ought not to be long withheld, considering that the question involved is one of extreme importance in connexion with public and individual health.

RADIO-ACTIVE ATMOSPHERIC AIR.

Radio-activity would appear to be a universal property. Recent researches have at any rate shown that radio-active emanations exist in the atmosphere and that their source is probably the soil. The air abstracted by simple suction from the soil is found to be charged with active emanations, and similarly the air of cellars and underground places exhibits this remarkable property. Yet another interesting example is that of the natural carbonic acid gas which is evolved in districts along the Rhine which shows marked radio-activity, but some days after its liberation from the earth the gas becomes inactive and behaves like artificial carbon dioxide generated from carbonates by the addition of acids. It is well known, again, that the gases evolved in the thermal waters of Bath contain an important quantity of helium, and Professor Dewar is employing these waters as a source of this mysterious element for experimental work. It would be interesting to determine whether the gases evolved from the thermal springs of Bath are radio-active. In all probability they are. That being so, has helium anything to do with the phenomenon? Quite recently Sir William Huggins and his gifted wife Lady Huggins proved, by examining spectroscopically the light emitted directly by a radium salt at ordinary temperatures, that many of the lines coincided with the spectrum of helium. Again, Professor Rutherford obtained evidence in favour of the view that in the very slow break up of radium helium appears to be one of the products evolved. Still more recently Sir William Ramsay and Mr. F. Soddy succeeded in detecting helium by the spectroscope in the gases extracted from the radium salt. When Sir William Ramsay confesses that he is as much in the dark about it as anyone it is wise perhaps to wait for the results of further investigation before attempting to give any explanation of this singular phenomenon. It is, however, a very remarkable circumstance, considering the series of intricate chemical operations through which radium must pass before it is isolated in a more or less perfect condition, that apparently it should generate helium in some inexplicable way. The fact remains that there is a continuous production of helium from radium. It would be comparatively easy therefore to account for the air showing in general radio-active properties since the property is, so to speak, easily infectious. There are immense stores of radio-active material in the earth and in fact the whole globe is probably a radio-active sphere. The fact that natural gases escaping from the earth show a marked degree of radio-activity might be useful perhaps in differentiating natural from artificial aerated waters. Different meteorological conditions appear to determine different degrees of radio-activity of the air. Thus considerable activity is excited during fog, while in cold, frosty weather the activity of the air is very high. Again, the direction of the wind influences the radio-activity of the air. With the wind in the south and east the activity is about the same; with the wind in the north and west the activity is much lower. A fall of the barometer leads to increased activity probably because radio-active air is withdrawn from the soil owing to the reduced pressure. Altogether, it would appear that the discovery of this remarkable property of radio-activity presents a vast field for exploration. We ventured to think some years ago that such would be the case as soon as sufficient radio-active material could be isolated. The discovery of the properties of radium and helium promise to lift the great veil of nature high indeed, and the patient, laborious scientific research which has led to this result must not be forgotten.

THE ARMY ESTIMATES.

The recent discussion of the Army Estimates in the House of Commons possessed many points of medical interest. Taking it altogether Mr. Brodrick has been subjected to a long and trying ordeal of criticism of all sorts during his term of office, and he must have hailed the wholesale diversion of public attention to the tariff question with no little relief and satisfaction. Touching the subject of the soldiers' rations we consider that what Lord Stanley and Mr. Brodrick had to say seemed to be weak and inconclusive. It was alleged, and the allegation was not denied, that the recruit under training was not as well fed as the soldier when trained. Seeing that army recruits are young, immature, and growing lads and that they have as a rule been underfed previously to enlistment and possess keen appetites, we should have thought that if anything they required to be better, and not less well, fed than trained soldiers. That would seem to us to be the conclusion to be derived from physiological considerations and to be also entirely in accordance with ordinary experience. It is scarcely to be expected that a recruit will expend his daily pay in order to supplement his rations, or that, if ready to do this, the food so purchased will be of the most suitable and substantial kind. We have no doubt that, personally speaking, the War Minister is really of opinion that the recruit should not be stinted in regard to his supply of nourishing food, and that the State ought to furnish the young soldier with all he needs. But there at once arises the question of expense which would be considerable. It would nevertheless repay the State to incur the cost in the interest of the army and of all concerned. We are ready to hope and believe that, speaking generally as regards the soldier's accommodation and personal hygiene and comfort, considerable progress has taken, and is still taking, place. Mr. Bardett-Coutts in reference to the vote of £530,000 for the medical establishment, spoke about the reforms and changes which had been introduced in regard to the medical department, and commended the association of the civilian with the military element on the Advisory Board as a wise principle. But he thought that the relations of the two elements might be more clearly defined with the view of facilitating administration and avoiding friction. He likewise called attention to the very inadequate allowance made to the civil medical members on the Board. Mr. Brodrick's speech on the occasion in question will, we think, be generally regarded as satisfactory. It was, as is usual with Mr. Brodrick, optimistic in tone. He stated that at the last examination there were 72 candidates for 30 vacancies, some of the candidates having held places as house surgeons in the best hospitals in London. He fully recognised the services which Mr. Bardett-Coutts had rendered, eulogised the medical profession for the great and generous aid which he had received from several of its most eminent members, and dwelt upon the numerous beneficial changes which had already taken place in various directions and on others which are, he said, forthcoming. We hope that Mr. Brodrick's sanguine views will have quick justification.

---

[1] The Lancet, Sept. 6th, 1902, p. 684.

HOUR-GLASS STOMACH.

ONE of the most important results of the healing of a gastric ulcer is the narrowing of the lumen to which it gives rise. Should this occur at the pyloric opening a general dilatation of the stomach will result; if, however, the contraction is nearer the middle of the viscus an "hour glass" stomach will be formed, the stomach consisting of two cavities communicating with one another by a narrow orifice. This leads to a most troublesome form of dyspepsia hardly remediable by any medicinal or dietetic treatment, but surgery, by making a free communication between the two loculi of the stomach, usually succeeds in removing completely all the symptoms. The condition is so well recognised now that it is often possible to diagnose it before operation. In the present number of THE LANCET we publish a case which was under the care of Mr. B. G. A. Moynihan in the Leeds General Infirmary. The diagnosis of hour-glass stomach was definitely made and when the abdomen was opened this condition was found, but further examination revealed that the stomach was constricted in two places, a triloculated or trifid stomach being formed. Operation completely relieved the patient. The rarity of the case is great and it is, we believe, the first case of trifid stomach on which an operation has been performed. It demonstrates clearly the great importance of examining the whole stomach in such cases, for if the third pouch had not been found the operation would have failed to relieve the patient. We congratulate Mr. Moynihan on this very interesting and satisfactory case.

THE HEALTH OF THE HOLDERS OF LONDON COUNTY COUNCIL SCHOLARSHIPS.

THE brief reports which have been drawn up by Dr. L. C. Thorne Thorne and Dr. F. May Dickinson Berry on the physical condition of the holders of London County Council scholarships for the past years provide a satisfactory record and much interesting information. It is instructive to note that the physical development of these clever children, both boys and girls, is distinctly above the average as measured by the standard of height and by the standard of chest measurement. The analysis of the physical examination of training college scholars (boys) is decidedly superior to that of the junior and intermediate scholars, while as regards the examination of the girls the most noteworthy point is the number of cases which display weakness of the muscles of the back with a tendency to lateral curvature. This latter abnormality has led to the suggestion on the part of Dr. Berry that more ought to be done for girls in elementary schools to develop the muscles of the back by physical exercises and gymnastics. The fact that so large a number of these intellectually superior children should give evidence of albuminuria is a point which requires explanation—15 per cent. of the junior scholars (boys) had albumin in the urine, while of the intermediate and commercial scholars 25 per cent. showed the same pathological condition. In the case of girls the juniors showed about the same percentage of cases of albuminuria, while the intermediate scholars were only affected to the extent of about 14 per cent. Dr. Berry apparently regards a slight degree of albuminuria as a matter of no great importance. The clinical significance of so-called physiological, cyclic, or intermittent albuminuria in children is little understood. It appears, however, to be more common among those of precocious mental development and those generally of a nervous temperament. The subsequent history of the subjects of examination should not be difficult to follow and it would be most interesting and instructive to learn whether the independent appearance of albumin in the urine of children apart from symptoms of organic disease of the kidneys is a precursor of more serious disease at a later period of life. Several cases of stammering, both in girls and in boys, are recorded and the number of children who have been found to be suffering from defective hearing, defective eyesight, and adenoid growths in the naso-pharynx is suggestive that even among the superior classes of schoolboy, from which most of these scholars are drawn, there is great need to have these conditions treated at an early age, when there are reasonable prospects of preventing serious and permanent damage.

THE MOTOR-CAR BILL.

THE Motor-car Bill was read in the House of Commons on the night of August 4th for the second time, but only after Mr. Long had consented to introduce a clause providing for a speed limit. The question of what "speed limit" is to mean is to be left to the Committee stage, but it has been indicated that there will be two penalties under the Bill. The one will be for driving at a speed exceeding the maximum allowed and the other for driving at such a speed as to be dangerous to the public. The latter offence may be punished by imprisonment but the former will be met with a fine, and we hope that the fines will be heavy, especially where any attempt to resist authority is shown. What, for instance, is the use of fining the owner of Holland House a few pounds? As to speed, our own opinion is generally in conformity with that expressed by Sir Philip Muntz—namely, that no motor-car should be allowed to travel at a faster rate than first-class horse traffic, and we think that this is a view that will be very generally shared by the medical profession—a class in whose hands the motor-car, rightly used, may be a real blessing to rural communities. Our present highways were laid out for horse traffic, and in the palmy days of coaching the best coaches travelled at a rate of ten miles per hour including stoppages. If a motor-car goes faster than 15 or 18 miles per hour the road is being used, very generally, for a purpose which its angles and gradients and breadth do not suit. Moreover, it is not merely danger to traffic, both pedestrian and vehicular, which motor-cars bring about; they cut up the surface of the roads, while the annoyance, to use no stronger term, caused by the dust, the smell, and the noise make many a country residence, the grounds of which border on a highway, perfectly uninhabitable. Here it is the heavy car designed to go at a furious pace, and generally going it, which does the harm, especially when driven by that class of motorist whom Sir Fortescue Flannery designated in the House of Commons, with most happy phrasing and legitimate loathing, as a "road hog." The motor-car of proper construction for the roads and driven by competent and respectable persons, ought to be a source of benefit to many members of the community, but it must be used in such a manner as not to interfere with the enjoyment of the roads, so as not to destroy property, and, above all things, so as not to endanger life. We hope that the Government will be able to frame and to pass a measure securing these things.

THE METROPOLITAN HOSPITAL SUNDAY FUND AND THE APPEALS OF HOSPITALS TO THE PUBLIC.

A MEETING of the Metropolitan Hospital Sunday Fund was held at the Mansion House on July 30th (see p. 410 of this issue) when an addition was made to Law IX. of the constitution which appears to us to be of considerable significance. The new article of the constitution empowers the committee of distribution, when determining awards to institutions that have made appeals to the public immediately preceding Hospital Sunday, to take into consideration the amount received from such appeals and the loss, if any, which the Fund may have thereby sustained. Our readers will remember that appeals were made on behalf of certain hospitals this year in the weeks immediately previous to Hospital Sunday and it is probable that the responses to these appeals to some extent stopped the flow of charity to the Fund. Again, the council of the Metropolitan Hospital Sunday Fund looks to the press for special aid during the actual week of collection and during the preceding days, but the columns of many papers had been recently filled with other appeals to the public to make gifts to certain particular institutions, with the result that these papers could not extend to the Fund the same amount of support which they have given in other years. We feel sure that the hospitals which made appeals at an unfortunate date this year will not do so again, but it is well that the committee of distribution should mark its sense of the injustice of any charity receiving at the same date a special donation from the public and a share of the general charity. The Metropolitan Hospital Sunday Fund has now been in existence for more than three decades and the middle week in June has become associated in the public mind with a collection for the Fund. If appeals are made to the public at that particular season of the year by individual hospitals confusion may arise and charity may be diverted from its intended object.

THE DISTRIBUTION OF PLAGUE.

As regards the Cape Colony the medical officer of health states that for the week ending July 11th the condition of the various places mentioned below was as follows. At Port Elizabeth 2 cases of plague were discovered during the week—namely, 1 native male (found dead) on July 7th and 1 coloured male on the 11th. At the Plague Hospital 1 coloured male was discharged during the week, leaving 6 cases under treatment. Plague-infected rats continued to be found in the town. At East London 1 case of plague was discovered—namely, a native female (found dead) on July 5th. At the Plague Hospital 1 native male was discharged during the week, leaving 4 cases under treatment. At King William's Town no case of plague was discovered. At the Plague Hospital 1 European male and 1 coloured male were discharged, leaving 3 cases under treatment. Plague-infected rats continued to be found in the town. Neither at Graaff-Reinet nor at Burghersdorp was any case of plague in man or in rodents discovered during the week. At Queenstown 3 cases of plague were discovered—namely, 1 native female on July 5th who died on the following day, 1 native female (found dead) on the 6th, and 1 native male (found dead) on the 7th. No patients were under treatment in the Plague Hospital. Neither at Stockenstroom not at Riversdale was any case of plague in man or in animal discovered during the week. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on July 31st states that for the week ending July 30th there were 12 cases of plague and 8 deaths from the disease. In Hong-Kong, a telegram from the Governor received at the Colonial Office on July 27th states that for the week ending July 25th there were 13 cases of plague and 11 deaths from the disease.

CADGE OF NORWICH.

A MOVEMENT has been set on foot to perpetuate the memory of the late Mr. William Cadge of Norwich in some permanent form. Accordingly, at a meeting held on July 22nd, at the request of Mr. William H. Day, chairman of the committee, and attended by some of the professional friends of the late Mr. Cadge, it was resolved that either a memorial window or brass in the chapel of the Norfolk and Norwich Hospital would be suitable, that subscriptions should be confined to his professional brethren, and that these should be limited to one guinea. Any medical man who desires to participate in the above is requested to forward his subscription to Dr. M. Beverley, Norwich, who is the treasurer of the fund.

TUBERCULOSIS IN THE EASTERN COUNTIES IDIOT ASYLUM.

ALTHOUGH the Idiot Asylum at Colchester is not situated in exactly rural surroundings there is nothing about its exterior to suggest to the traveller on the Great Eastern Railway as he passes Colchester station that the institution is either a culture ground for the tubercle bacillus or a home for dying tuberculous patients. But the annual report for Colchester for the year 1902, which is written by Dr. Edward Chichester, who was then acting as medical officer of health, suggests that there may be something about the institution which requires investigation at the hands of a competent committee composed largely of medical men. During 1902 there were 16 deaths from tuberculosis registered in the institution. This isolated fact conveys nothing, but when it is considered in relation to the circumstance that there were only 23 deaths from all causes it is apparent that the tubercle bacillus was responsible for no less than 69·5 per cent. of the total. This seems to require some explanation, more particularly when it appears that the total population of the asylum is only about 300. If this number really represents the total population for the year we have 16 deaths from tuberculosis in an asylum population of 300, as compared with only 67 deaths from tuberculosis in the remainder of the Colchester population of some 37,000. We shall hardly be surprised to learn that the subscribers to this institution are anxious to ascertain what are the actual facts—whether, for instance, the figures are trustworthy and the inferences sound, and, if so, what steps are being taken to ascertain the cause of this excessive incidence of tuberculosis upon the inmates.

THE CHRISTIAN HOSPITAL OF CHICAGO.

THE United States is the country in which, *par excellence*, flourish diploma-selling institutions of all sorts and kinds. Many of the more notorious of these have been abolished, but there yet remain several where degrees may be bought for a pecuniary consideration. An institution has been set going recently in Chicago which embodies in its rules of membership many objectionable features. This institution is called the Christian Hospital and includes among the members of its medical and surgical staff some well-known medical men of Chicago. The president of the staff, indeed, is a surgeon of world-wide fame. The objects which the originators of the Christian Hospital hope to attain by its establishment are set forth in the circular issued by them to the medical profession as follows. "Our certificate of membership is artistically designed and executed in the highest style of the lithographer's art, neatly framed, and hung on the walls of your reception room it imparts confidence to all visitors and patients and is a much stronger drawing card than an ordinary diploma as it indicates a higher attainment. We furnish free with each of our certificates a solid gold lapel button of special Red Cross design in enamel and the words, 'Christian Hospital, Chicago,' in circular form around the red cross; also a neat pocket membership ticket. This alone if displayed judiciously will bring more dollars annually than the cost of your membership. We will agree to pay you a cash commission of 50 per cent. of all surgical fees and 25 per cent. of all medical fees received from patients you bring or send to us. This, of course, will be held strictly private and confidential. Your professional interests as well as our own demand this." The last clause contains the essence of the whole scheme, which is to induce medical men to send patients to the institution, the bait being the promise of a division of fees. The American Medical Association at its recent meeting[1] in its new "Principles of Medical Ethics" laid special stress upon the question of division of fees and strongly deprecated the custom. In the face of this expression of opinion it is hard to see how medical men of note can lend their names to the furtherance of such an institution as the "Christian Hospital" of Chicago.

FOOD AND DRINK SWINDLES.

IT has long been known that bees exhibit a preference for genuine cane sugar and unless starving they will not touch the beet substitute at all. This fact may or may not have a physiological significance; it depends, it seems to us, upon the purity of the sugar. There is no evidence, as far as we know, that cane sugar is physiologically or dietetically superior to maple sugar. When, however, it can be shown that the sugar is impure either can obviously be injurious to health. And in this regard beet sugar is much more likely to contain injurious impurities than genuine cane sugar, for the former has to be "faked" in order that it may more closely resemble the latter. Tin salts are admittedly employed to give yellow crystals the appearance of Demerara crystals and aniline dyes are used again to correct the yellowness of the crystals and to give them the appearance of white loaf sugar. All such devices are certain to be physiologically mischievous; they are calculated to interfere with the natural condition of the sugar in which it is best suited for physiological requirements. This is typical of the frauds commonly practised in regard to articles of food and drink at the present day. "Substitution" is a very great modern evil and those who encourage this practice and thrive upon it should be punished very severely and sufficiently to act as a deterrent to the continuation of it. The creed of the substitute-monger is always that the substitute is better than the real thing; he always knows, or pretends to know, better than the public what is good for it. Glucose, he says, is better than cane sugar for making jam; it keeps better and does not crystallise. Grain spirit is more wholesome, again, he urges, than malt spirit or grape spirit. But he can never be induced to state on the label the truth about the article. If the substitute is better, as he says, and the public persists in demanding it, why does he hesitate to describe his goods as such? The fact is, the public is badly deceived by the processes of substitution which are carried out on a very large scale in reference to a very great number of articles of food and drink. The country is sadly in need of a Bill to deal effectively with misleading labels and descriptions.

EPSOM COLLEGE: PRESENTATION TO DR. HOLMAN.

BEFORE the usual meeting of the council on August 5th the chairman, Sir Joseph Fayrer, presented to the treasurer, Dr. C. Holman, on behalf of the members, a testimonial in recognition of the great services which he has rendered to the institution for so many years, and especially as a mark of their appreciation of his efforts in connexion with the recent successful festival dinner held under the presidency of the Prince of Wales. The testimonial took the form of a large portrait, which is to hang in the council chamber of the College in Soho-square, and an illuminated address as follows:—

> "To Constantine Holman, M.D., Treasurer of the Royal Medical Benevolent College.
>
> We, your colleagues on the Council of the Royal Medical Benevolent College, desire to take the present opportunity, when we have just celebrated, under the presidency of His Royal Highness the Prince of Wales, the most successful festival dinner that the College has ever had, of expressing our sense of the great and valuable services [illegible] so many years, for 16 of which [illegible] easurer. [illegible] and work which have been so ungrudgingly given by you and to which the College so largely owes its present satisfactory position.
>
> We desire to offer our thanks for all that you have done and are doing, and to express our hope that you may long be spared to us and to the College.

The address was signed by the President of the institution and by all the members of the council and incorporated in the handsome illumination were sepia views of the College at Epsom. We are confident that Dr. Holman appreciated the simple and expressive terms in which his services to the College were referred to, and no more appropriate testimonial could have been selected than a portrait to be placed amongst those in the council room of the founder, presidents, vice-presidents, and other old friends and supporters of the institution. For 25 years Dr. Holman has watched over the College as a member of the council and for 16 years he has taken a most active interest in it as treasurer, while he has been a governor since the foundation of the institution 50 years ago. Truly he has merited every word in the address.

THE STORY OF COLOTOMY.

THE evolution of an operation is often of great interest. Occasionally an operative method springs full grown from the head of its inventor and subsequent years hardly witness any modification of it, but more frequently at its first appearance an operation is somewhat crude, and time and experience shape and mould it until in its maturity it is a very different procedure from what it was at its inception. Many surgeons improve the inventor's operation, modifying the idea first put forth, and tending to make the procedure easier and safer than it was before. Sometimes a useless or even a harmful change is suggested; it is taken up, tried for a time, and not fulfilling its original promise it is dropped. The operation of colotomy has undergone many and great changes since it was first thought of. In 1710 Littré suggested a left inguinal colotomy; in 1839 Amussat devised the lumbar operation and in pre-antiseptic days this was without doubt the better operation. As modified by various surgeons it became ultimately a fairly successful operation, for if skilfully performed it avoided opening the peritoneal cavity and yet afforded free exit to the fæces above the obstruction. Littré's operation, however, had never been completely abandoned and gradually during the last 20 years it has replaced Amussat's method, until at the present time the lumbar operation is hardly ever performed. Meanwhile, Littré's operation has been undergoing various modifications which have enhanced its value until it is now practically perfect. Mr. F. T. Paul of Liverpool, who has himself made some important improvements in the operation, took colotomy for the subject of a recent address which we print this week. His words show how success depends on attention to many small points. The discomfort due to the escape of fæces from which the patient formerly suffered no longer necessarily occurs, and if the operation has been performed for some non-malignant obstruction a man may lead a long and comfortable life even though he be the subject of a colotomy.

---

[1] THE LANCET, July 4th, 1903, p. 62.

THE FLY PLAGUE.

THE presence of flies in the house is a reproach. It is a falling away from a high hygienic standard, for the fly is a pestilential fellow. It must be admitted, however, that it is very difficult to keep habitable places free from flies. Poisonous fly-papers are unsightly and glutinous cords and traps are not very pleasant accessories in the household. Yet it is a matter not only of comfort but also of health that the fly should be excluded. The fly may easily be a pathogenic agent owing to the fact of its choice of environment being oftentimes of the most disgusting character. When a fly walks across a suitable culture medium it leaves infection behind it, as shown in the colonies of organisms which develop on the points with which the insect's legs have been in contact. The fly therefore should be driven out of our haunts. Preventive measures are best and at this season of the year, when flies are beginning to infest our houses, it is an excellent precaution to cover the window openings with wire gauze. It is a curious fact that flies will not pass through netting even though the meshes be quite large unless there be a source of light as from a window behind it. Thus in rooms with windows only on one side a net over the window will absolutely keep the flies out, although the meshes of the net may be an inch apart. It is surprising that in railway carriages a sliding frame fitted with wire gauze is not provided as well as the window. Such a sliding screen could be used when ventilation is wanted, while dust and rain would be excluded at the same time. The gauze frame would certainly keep flies out. We have seen carriages on certain of the continental lines provided with a gauze-screen of this kind. There is no reason why a similar arrangement should not be fitted to the ordinary window sash. This would do much to mitigate the great nuisance of flies in the house.

THE ROYAL COMMISSION ON LONDON TRAFFIC.

THE Royal Commission on London traffic, on the successful issue of whose recommendations the improved convenience of Londoners in their daily business largely depends, has recently taken steps that augur well for its efforts. The Commissioners have shown that they hold the worthy desire of seeing with their own eyes the things in judgment upon which they sit, and that they will not be content with mere reports and accumulated evidence. On July 31st, instead of sitting at the Westminster Palace Hotel to hear evidence, the Royal Commission took the practical and laudable step of personally inspecting the condition of the roads and of the congested neighbourhoods in and around the north-west and north-east districts of London. Six motor-cars were put at the disposal of the Commissioners by the members of the Automobile Club. The route taken was the Mall, Piccadilly, and so through Hammersmith-broadway to Hammersmith Bridge. A suggestion that seems to us of much value was made by Mr. Jeffreys, the honorary secretary of the Roads Improvement Association. This is to the effect that in order to relieve the pressure of traffic in Piccadilly it would be well instead of setting back the frontage to continue Pall Mall through Green Park so as to converge on Piccadilly at the widened portion near Hyde Park Corner. The value of such a road as an alternative route to Piccadilly would obviously be great. And there should be no great difficulty in carrying out such a suggestion, although the interference which would probably be necessary with part of the courtyard of St. James's Palace or with Warwick House and the little passage into the Green Park might be regrettable from the artistic and antiquarian point of view. Unfortunately, the practical demands of progress often bring about the demolition of the old, the graceful, and the comparatively extravagant to make way for the new, the useful, and the economical. Changes of some such nature are inevitable to procure more space for the traffic which at certain seasons of the year hopelessly blocks parts of Piccadilly.

IN connexion with the Royal visit to Ireland His Majesty the King has been pleased to confer honours upon various persons notable in their several stations. Among the names of more particular interest to the medical profession are that of the President of the Royal College of Physicians of Ireland, Dr. Arthur Vernon Macan, and that of the President of the Royal College of Surgeons in Ireland, Mr. Lambert Hepenstal Ormsby. Both of these gentlemen have received the honour of knighthood.

THE death at the age of 69 years is announced of Dr. John Tatham of Burton-in-Lonsdale, and late of George-street, Hanover-square. Dr. Tatham was for many years a member of the staff of the Hospital for Consumption and Diseases of the Chest, Brompton, and at the time of his death was consulting physician to that institution. The memory of his genial shrewdness with his patients and his powers of internal organisation will long be preserved there.

LORD IVEAGH has given to the King the sum of £50,000 to be divided among the Dublin hospitals of all denominations and the National Hospital for Consumption, Newcastle, county Wicklow. The gift is a worthy commemoration of the visit of the King and Queen to Ireland.

THE death is announced at the age of 84 years of Dr. Joseph Griffiths Swayne of Bristol, author of the famous Obstetric Aphorisms. In a future issue we hope to give a more extended notice of Dr. Swayne's career.

THE CANCER RESEARCH FUND: THE FIRST ANNUAL REPORT.

A MEETING of the general committee of the Cancer Research Fund was held on the afternoon of July 30th, at the offices of the Conjoint Board, Thames Embankment, London, W.C., the Right Hon. A. J. BALFOUR, Prime Minister, being in the chair. The first annual report of the Fund was presented and showed that the Cancer Research Fund had its origin in October, 1901, when a gentleman of considerable standing and pecuniary influence in the City stated to a well-known surgeon that he believed that he could raise in the City a sum of £100,000 or £150,000 for the carrying on of a systematic investigation into the cause of malignant disease. The Royal College of Physicians of London and the Royal College of Surgeons of England were approached by the surgeon, a member of the Council of the latter body, and as a result a general committee of the two Colleges was appointed to formulate a scheme of research. After a little unavoidable delay an appeal letter was published in the *Times* of April 18th, 1902, and leading articles were written in the columns of that paper and the medical journals advocating the scheme, which was understood from the beginning to have had Royal approval. A sum of £30,000 was quickly collected and a start was made in the investigation by the securing of a strong executive committee, the appointment of five trustees for the Fund, and the choice of Mr. Henry Morris as honorary treasurer and Mr. Frederic G. Hallett, secretary of the Conjoint Board, as secretary. Then a general superintendent, Dr. E. F. Bashford, was unanimously elected and given general control of the central laboratory of the Fund. Last autumn His Majesty the King was pleased to accord his patronage to the Fund and pathological and statistical subcommittees were appointed, while the laboratories of the Conjoint Board were placed at the disposal of Dr. Bashford by the Royal Colleges. The work of the Cancer Research Fund began immediately.

The report of the general superintendent, which, dating from November, 1902, may be said to cover little more than half a year's work, forms a clear statement of the steps which have been taken to organise a research upon as wide a basis as the funds available would allow. Extensive experimental work has not yet been undertaken, although progress has been made in studying varieties of malignant new growths in animals. Certain alleged therapeutic measures applied to cancer in man have been the object of serious attention and in particular the results of electro-therapeutics, the Finsen *light, high-frequency currents, and the x rays, have been carefully* examined, the medical men in charge of the electrical departments of hospitals having cordially cöoperated, while many medical men have made reports on the treatment of their cases. Work has also been directed to endeavour to establish the statistics of cancer on a secure pathological basis. An investigation and analysis have been undertaken of the records of deaths from malignant new growths in the London hospitals and the statistical committee after consideration of the results of preliminary investigation has recommended continuation of work upon these lines. Under Dr. J. F. W. Tatham's supervision certain clerks in the General Register Office are now engaged in abstracting from the registers of the last three years facts bearing on the relative incidence of fatal cancer on the more important occupations. A memorandum approved by the pathological and executive committees of the Cancer Research Fund has been printed by the Colonial Office as an official paper and issued by the Colonial Secretary to self-governing and Crown colonies along with covering despatches. The questions formulated in the memorandum are very definite ones and it is hoped that when they are answered the relations of the incidence of cancer to race and locality may be compared to some extent. An interesting financial statement by the honorary treasurer is added to the report, showing how carefully the work done has been proportional to the money received and pointing out how vitally necessary to the chances of success of the research a large increment of funds is. It was mentioned that contributions might be sent to the honorary treasurer, Cancer Research Fund, Examination Hall, Victoria Embankment, London, W.C., or to the account of the Fund, London and Westminster Bank, Marylebone Branch, Stratford-place, London, W.

Mr. BALFOUR then called upon Lord Strathcona to propose the adoption of the report.

Lord STRATHCONA, in moving the adoption of the report, directed attention to the lines laid down for work by the Fund, but said that it was too early to draw any deduction from the experimental researches, though important results were expected to follow the statistical information now being prepared on the same basis in the different parts of the world under the auspices of the Fund. There was one feature which was regrettable—namely, that the revenue derived from the Fund already subscribed was not sufficient to meet the expenditure which was necessarily being incurred, and in consequence it had been found necessary to draw upon the capital account. The fund so far subscribed was slightly under £50,000 and had been reduced by about £100 in the past year. It was most important that the amount should be made up to £100 000. Hitherto only 213 subscribers had contributed to the Fund. The report had been placed before the President of the Fund, the Prince of Wales, who had given his approval.

Mr. BALFOUR mentioned that if the Prince of Wales had been able to be present he would have taken an active part in suggesting that the report be adopted.

Mr. C W BELL seconded the motion which was carried.

Sir FREDERICK BRAMWELL moved a vote of thanks to the officers of the Fund and others who had assisted in its work during the year, and this having been seconded by Mr. HAROLD J. STILES, representing the Royal College of Surgeons of Edinburgh, was also carried.

Sir WILLIAM S. CHURCH, replying on behalf of the executive committee and the consultative staff, referred to the great difficulty which had been experienced in organising such an undertaking as that which they, the two Royal Colleges in London, were directing. At the outset two main points were considered to require immediate attention. In the first place it seemed to be essential to collect statistics in which attention had been paid not only to the diagnosis of the disease during life but also to post-mortem verification. In the second place, it was found extremely difficult to obtain a convenient locality—a few acres of land with suitable buildings, something of the nature of a small farm—for carrying on experimental work. Some of the lower animals were afflicted apparently with exactly the same forms of cancer as the human species and the object of the experimental work was to ascertain whether it was possible in them to establish a cancerous breed, whether the disease could be transmitted from parents to progeny.

Sir WILLIAM BROADBENT moved a vote of thanks to Mr. Balfour for presiding at the first annual meeting. In the course of his speech he referred to the interest which Mr. *Balfour had for some years taken in the subject and said* that in the medical profession more importance was attached to the prevention of the disease than to its cure. It was on these grounds that researches as to the pathological or etiological factors of the disease were felt to be so necessary.

Mr. JOHN TWEEDY seconded the motion which was carried.

Mr. BALFOUR, in the course of his reply, said that the results of modern medical and surgical treatment showed a [illegible] with what could be accomplished [illegible] 100 years ago and the progress [illegible] as rapid in the future as it had been in the past. With regard to cancer, isolated endeavour had now been going on in every hospital and by every medical practitioner in every civilised country of the world for years past. What was wanted was cöoperation between all the different workers in this field—not merely cöoperation among those engaged in combating to the best of their ability as practitioners the ravages of this disease but of those who, by their scientific and biological attainments, could throw some light upon the cause and *origin* of the disease. He noticed with much satisfaction that the scope of these researches would include the manifestations of the disease, not only in man but also in the lower animals. He believed that it would come as a surprise upon a large number even of the instructed public to know the degree to which not only mammals but even species lower in the scale of organisation suffered from a disease which in all its peculiarities seemed to be absolutely identical with that from which the human race suffered so greatly. It was probable that the wider sphere of fruitful study thus opened would contribute to the formation of some estimate of the cause and course of the disease, and some knowledge of the cause and course of the disease must after all be the basis of any reasonable attempt to find a mitigation or a cure. It was true that happy experiments, or the inspiration of some fortunate man of genius, might, in anticipation of these wider generalisations, suggest some effective remedy, but it was impossible to count upon this; and in any case the work of this fortunate genius could not fail to be aided by the generalisations to which the researches now being commenced must inevitably lead. He also sympathised with what was said by Sir William Broadbent to the effect that there was no supposed or suggested cure which the committee would regard as unworthy of investigation. The number of quack remedies, the number of perfectly futile remedies, which had from time to time been suggested, sometimes by those who were ignorant and sometimes by those who only desired to make money out of other people's ignorance, had been so great that none could wonder at the impatience with which the trained practitioner looked at most of the proposed cures; and it was to be feared that the vast majority of them would not bear any examination at all. But undoubtedly the proper spirit in which to enter into these investigations was not to reject hastily anything which has even a *primâ facie* claim to be considered. It was allowable to use hypothesis as a guide to the collection and examination of facts but not to start the collection and investigation of facts with any hypothesis so firmly rooted in the mind as to allow it to interfere with impartiality of the judgment. He was certain that this investigation had been, and was going to be, carried out with due attention to this precaution, and he earnestly advised the public not to show impatience at the slow march of discovery upon a matter which had defied the greatest physicians of the world up to the present time. He trusted that the public would go forward in a liberal spirit, recognising that success, however certain, must be slow; not to be too impatient of results nor too anxious to receive some equivalent in discovery for every subscription that they might give to the work. He hoped that they would be anxious to endow this great machinery for scientific and pathological investigation in a way which should, by the accumulated learning and experience of years, do something to mitigate one of the greatest curses under which humanity groaned. It was, however, disquieting to find that, though the sum which had been collected appeared to be a large one, it was nevertheless contributed by only 213 persons out of a community of 40,000,000. Considering that all of these 40,000,000 had either in their own persons or in the persons of those dear to them—wives, children, grandchildren—a direct interest in the successful result of these investigations, it was surprising that the contributors should be so few in number. He hoped that when the next annual meeting took place it would be found that others had come forward and that the result of their united efforts would be the providing of an assured financial basis which would be the best guarantee of ultimate success.

Sir William Church proposed that Sir Henry Howse should be added to the general committee as, in consequence of his having vacated the office of President of the Royal College of Surgeons of England, he necessarily went off the executive committee.

This was unanimously agreed to and the proceedings then terminated.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary Comitia was held on July 30th, Sir William S. Church, Bart., the President, being in the chair.

Seven gentlemen, having satisfied the Censors and given their faith to the College, were admitted Members. Licences were granted to 122 gentlemen who had satisfied the examiners and conformed to the regulations of the Conjoint Board. The Diploma in Public Health was awarded to 17 candidates on the recommendation of the examiners. George Francis Angelo Harris, M.D. Durh., elected on April 30th, was admitted to the Fellowship *in absentiâ* and the seal of the College was set to his diploma.

Communications were received from the secretary of the Royal College of Surgeons of England, reporting certain proceedings of its Council on July 9th; from the Worshipful Company of Spectacle Makers, asking the views of the College on a proposal that competency in sight-testing should in future form a subject of examination and certification for the diplomas granted by them to opticians (this was referred to the Censors for consideration and report); from the Dean of the Faculty of Medicine, University of Edinburgh, reporting the award of the Murchison scholarship, July, 1903, to Charles John Shaw, M.B. Edin.; and from Dr. Norman Moore, offering for the acceptance of the College an autotype portrait of Dr. Fitz-Patrick.

The election of Censors, other College officers, and examiners, on the nomination of the President and Council, was carried out.

A confidential report by the visitor and inspector of the General Medical Council on the Final Examination of the Conjoint Board was referred to the council of management for consideration and report.

A report was received and approved, dated July 22nd, from the conjoint committee appointed to consider and to report upon any alterations that may be desirable in the regulations for the First Conjoint Examination.

A report was received from the committee appointed to consider and to report on the question of the alleged physical degeneration of recruits for the army, the tenour of which was to the effect that the information furnished was not of such a character as to enable the College to express a decided opinion.

A report was received from the committee appointed to consider and to report on the practical safety and prophylactic value of anti-typhoid inoculation. This was to the effect that not only was a lessened susceptibility to the disease brought about as a result of the inoculation but that the case-mortality was largely reduced; also that with due care there was no direct danger, except possibly from some temporary increase of susceptibility immediately following inoculation.

A report was received from the representative of the College in the General Medical Council on the proceedings of that Council during its session in May last and at a special session in July.

The Parkes-Weber prize was awarded to Hugh Walsham, M.D. Cantab., F.R.C.P. Lond. The Council recommended that the Moxon medal should be awarded to John Hughlings Jackson, M.D. Aberd., F.R.S., as having especially distinguished himself by observation and research in clinical medicine. The Council also recommended that the Baly medal should be awarded to John Newport Langley, D.Sc., F.R.S., of Trinity College, Cambridge, as having pre-eminently distinguished himself in the science of physiology.

The quarterly report of the College finance committee was received and adopted, as were also the annual reports of the library committee and curators of the museum.

The quarterly report of the examiners for the Licence on the results of the April examination was received and also an application from Horatio George Adamson, M.D. Lond., praying for the restoration of Membership resigned by him in 1897.

The newly elected officers, examiners, and members of standing committees gave their faith to the College.

Looking Back.

FROM

THE LANCET, *SATURDAY*, AUGUST 6, 1825.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

On the insensibility of the Retina.

By M. Magendie.

It has already been shown, that some parts usually considered as nerves, and consequently as the organs possessed of the greatest sensibility, were, notwithstanding, impervious to tactile impressions; that they could be even pricked and lacerated without appearing to induce the least feeling of sensibility, and such were the olfactory and optic nerves of the retina.

About four months since a young woman was brought to M. Magendie, having two perfect cataracts, for the removal of which she expressed a very great desire, and the great wish M. M. had of ascertaining whether the retina did possess that exquisite sensibility so much insisted on by physiologists and metaphysicians, soon induced him to comply with her request. The cataract being of the soft kind could not be couched at once, it yielding to the pressure, and therefore only a portion could be depressed at a time; each time, however, a bit was carried down, the resistance from the parietes of the eye could be distinctly felt, forming at once a convincing proof of having pressed on the retina. Notwithstanding this, the patient not only did not complain, but appeared not even to have been conscious of such pressure being used, and which she necessarily must have shown had the retina been so sensible as is usually believed. Somewhat emboldened by this result, M. Magendie directed the needle towards the bottom of the eye and touched the retina very slightly; this was repeated five or six times, but the woman evinced no feeling of sensibility. It could not have happened that the retina was paralysed, for the instant the nervous membrane was touched she expressed her great delight on again seeing the light.

The other eye underwent the same treatment, the nature of the cataract being the same. This time, however, less caution was observed. The crystalline lens was depressed as completely as possible; the retina was freely touched in many parts with the point of the instrument, even with a force sufficient to have pierced through the membrane; all this, however, was done unknown to the patient, who felt no ill effects from it.

The experiment has subsequently been performed at the Hôpital de la Pitié, on a man affected with a cataract of the right eye. *The crystalline lens was easily depressed, and the sight immediately restored; at different times in the* course of the operation the retina was touched, but no sensation was produced indicative of any exquisite sensibility in the part.

In this case, as in the former one, the contact of the instrument, and even the pricks which were made in the retina, did not prevent the eyesight being completely restored. Thus it would appear, that the retina of man is devoid of sensibility except to the action of light, and thus far we in no wise differ from the lower animals.

"In a physiological point of view this result is more important, since," observes M. MAGENDIE, "it shows at all times the great superiority of experiments over abstract reasoning, and what deductions are more abstruse and complicated than those of philosophers, founded on the great sensibility of the retina!"—*Journal de Physiologie, June* 1825.

THE BATTLE OF THE CLUBS.

KIDDERMINSTER.

WE have received the following letter from the secretary of the Kidderminster Medical Society with a request for its publication:—

To the Editors of THE LANCET.

SIRS,—I write to inform you at the request of the Kidderminster Medical Society that after a conference with the Kidderminster Medical Aid Association the latter association has agreed to adopt the following new rules:—

1. A rule to prohibit canvassing.
2. That the cash reserve fund shall not exceed £300.
3. That it will not admit to the benefits of the association as public members any persons whose wages exceed £3 per week; also that the minimum contribution for public members of all ages shall in the future be *4d.* per month or *1s.* per quarter per member.

In consequence of this agreement the Kidderminster Medical Society has removed the professional disabilities previously imposed upon the medical officers of the Kidderminster Medical Aid Association and will in future meet them in professional consultation. I shall be obliged if you will publish this in your next issue.

I am, Sirs, yours truly,
O. O. PENRHYS EVANS,
August 1st. *Honorary Secretary, Kidderminster Medical Society.*

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on August 4th, Mr. JOHN TWEEDY, the President, being in the chair.

It was resolved that diplomas of Membership should be issued to 120 successful candidates.

As recommended by the Court of Examiners, the University of Birmingham was added to the list of Universities whose graduates may present themselves for the examinations for the Fellowship without first becoming Members of the College.

It was resolved that diplomas in public health should be issued jointly with the Royal College of Physicians of London to the 17 successful candidates.

It was resolved that, as recommended by the museum committee, facilities should be offered to the University of London for holding the examinations in pathology of the University at the College instead of at the Examination Hall, with the object of preventing the injury likely to be caused in course of time to the museum specimens by their frequent removal from the College premises.

It was resolved that the loan of museum specimens to the University of London for examination purposes be renewed for another year and that the University be requested to take into consideration the practicability of holding its examinasions in pathology at the College.

It was resolved that the loan of museum specimens to the Army Medical Department for examination purposes be renewed for another year.

Permission was granted, subject to the usual conditions, to Mr. George Pernet to make use of the dermatological *models, drawings, and specimens in the museum for the purpose of publication in the form of an atlas.*

It was resolved to have rooms Nos. 2 and 3 of the museum painted and therefore the museum will be closed from August 8th to Oct. 1st.

The balance-sheet was approved and adopted. It showed that the balance of income over expenditure amounted for the year to £2004.

The Council elected Mr. P. Sidney Spokes, M.R.C.S., L.D.S., a member of the Board of Examiners in Dental Surgery.

A report was read from the committee on the physical disability of recruits for the army which was appointed to consider a memorandum forwarded through the Home Office. The report was approved.

A letter was read from Mr. Thomas Bryant reporting the proceedings of the General Medical Council at its late session and the best thanks of the Council were given to Mr. Bryant for his services as the representative of the College.

A letter was read from Sir William Turner, K.C.B., President of the General Medical Council, forwarding copies of reports on the first examination under the Conjoint Board. The consideration of this was postponed until the October meeting.

A report from the conjoint committee on the first examination was received and entered on the minutes but its consideration was postponed until October.

A letter was read from Messrs. Davidson and Morris, of 40, Queen Victoria-street, solicitors to the Worshipful Company of Spectacle Makers, stating that the company had appointed a committee to consider two memorials signed by 220 opticians praying the company to include the subject of sight-testing in their examination and to extend their diploma by certification of efficiency therein and that the committee propose to sit in November next to hear evidence and will be glad to have the views of the College, more especially as to what further restrictions should be included in the agreement which is to be signed by the diploma holders in the event of the request of the memorialists being granted. The letter was referred to the President and the two Vice-Presidents to consider and to report to the October meeting.

A letter of thanks was read from Lieutenant-Colonel W. H. Cadge, I.M.S., thanking the Council for the resolution passed by it in reference to his uncle, the late Mr. William Cadge.

A letter was read from the Director of the Nottingham Museum and Art Gallery thanking the Council for the loan of the portrait of the late Sir Spencer Wells and stating that the portrait would be removed and returned by the museum agents and would be insured for such sum as the College may wish.

Mr. C. T. Dent and Mr. G. H. Makins were appointed trustees of the Hunterian and Jacksonian funds in place of Mr. Reginald Harrison and Mr. Alfred Willett, who had resigned on ceasing to be members of Council.

The Chairman of the Library Committee reported the presentation to the library by Professor Retzius of Stockholm of the following works: 30 tracts by Professor Retzius himself or in collaboration and 11 volumes of his own and his father's works, including "Anthropologia Suecica" and the "Anthropology of the Finns," and his edition of Johannes Muller's letters to Anders Retzius.

The b[illegible] re given to Professor Retzius [illegible]

The n[illegible] be held on Oct. 15th.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8853 births and 4153 deaths were registered during the week ending August 1st. The annual rate of mortality in those towns, which had been 13·7, 13·5, and 13·4 per 1000 in the three preceding weeks, rose to 14·4 per 1000 last week. In London the death-rate was 13·5 per 1000, while it averaged 14·8 in the 75 other large towns. The lowest death-rates in these towns were 3·3 in Hornsey, 5·4 in Leyton and in Handsworth, 6·5 in Plymouth, 6 6 in Bournemouth, 7 6 in Tottenham and in East Ham, 8·1 in Croydon, 8 2 in Kings Norton, and 8 3 in Reading; the highest rates were 19 9 in Tynemouth, 20 1 in Great Yarmouth, 20 2 in Birkenhead, 20 6 in Sunderland, 21·2 in Liverpool, 24·9 in Bottle, and 25 9 in Warrington. The 4158 deaths in these towns last week included 591 which were referred to the principal infectious diseases, against 441, 473, and 532 in the three preceding weeks; of these 591 deaths 330 resulted from diarrhœa, 84 from measles, 51 from diphtheria, 49 from whooping-cough, 43 from scarlet fever, 29 from "fever" (principally enteric), and five from small-pox. No death from any of these diseases was registered last week in East Ham, Hastings, Bournemouth, Burton-upon-Trent, West Bromwich, Derby, Huddersfield, and South Shields; the highest death-rates from the principal infectious diseases were recorded in Walsall, Aston Manor, Grimsby, Stockport, Bootle, Sheffield, Tynemouth, and Rhondda. The greatest proportional mortality from measles occurred in Ipswich, Wolverhampton, Coventry, Stockport, Sheffield, and Merthyr Tydvil; from scarlet fever in Great Yarmouth, Walsall, and in Bootle; from diphtheria in Reading and in Stockton-on-Tees; from whooping-cough in York; from "fever" in Grimsby and in Rotherham; and from diarrhœa in Aston Manor, Birkenhead, Bootle, Warrington, Tynemouth, and Rhondda. Small-pox caused two deaths in Leeds, one death in Liverpool, one in Bootle, and one in Gateshead, but not one in any other of the 76 large towns. The Metropolitan Asylums hospitals contained 66 small-pox patients on Saturday last, August 1st, against 77, 71, and 71 on the three preceding Saturdays; nine new cases were admitted during last week, against 31, seven, and 12 in the three preceding weeks. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital, which had been 1701, 1710, and 1711 at the end of the three preceding weeks, had further risen to 1726 at the end of last week; 237 new cases were admitted during the week, against 253, 243, and 229 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 127, 115, and 130 in the three preceding weeks, fell last week to 110, but were 18 below the number in the corresponding period of last year. The causes of 43, or 1·0 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Birmingham, Leicester, Nottingham, Salford, Bradford, Leeds, and in 49 other smaller towns; the largest proportions of uncertified deaths were registered in Bournemouth, Northampton, Liverpool, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·2, 15·2, and 15·4 in the three preceding weeks, fell to 14·7 per 1000 during the week ending August 1st and was 0 3 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10 8 in Perth, 12 3 in Aberdeen, and 12:4 in Leith, to 15 4 in Edinburgh and 18·0 in Greenock. The 480 deaths in these towns included 28 which were referred to diarrhœa, 15 to whooping-cough, six to measles, five to diphtheria, five to "fever," three to scarlet fever, and one to small-pox. In all, 63 deaths resulted from these principal infectious diseases last week, against 82, 57, and 62 in the three preceding weeks. These 63 deaths were equal to an annual rate of 2 0 per 1000, which was 0 4 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 31, 22, and 34 in the three preceding weeks, fell last week to 28, of which 15 occurred in Glasgow, four in Dundee, three in Edinburgh, three in Aberdeen, and three in Paisley. The deaths from whooping-cough, which had been 18, 15, and 11 in the three preceding weeks, rose again last week to 15 and included eight in Glasgow. The fatal cases of measles, which had been 13, 11, and seven in the three preceding weeks, further decreased last week to six, of which three were registered in Edinburgh and two in Glasgow. Of the five fatal cases of diphtheria four occurred in Glasgow. The deaths referred to different forms of "fever," which had been nine, three, and six in the three preceding weeks, were five last week and included three in Glasgow. The deaths referred to diseases of the respiratory organs, which had been 90, 73, and 79 in the three preceding weeks, fell to 68 last week, but were 11 below the number in the corresponding period of last year. The causes of four, or 0·8 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·2, 16·0, and 17·5 per 1000 in the three preceding weeks, rose again to 18·3 per 1000 during the week ending August 1st. During the past four weeks the death-rate has averaged 17 5 per 1000, the rates during the same period being 13 1 in London and 14 6 in Edinburgh. The 133 deaths of persons belonging to Dublin registered during the week under notice showed an excess of six over the number in the preceding week and included five which were referred to the principal infectious diseases, against two, six, and nine in the three preceding weeks; of these, four resulted from diarrhœa and one from measles. These five deaths were equal to an annual rate of 0·7 per 1000, the death-rates from the principal infectious diseases last week being 1·6 in London and 1·4 in Edinburgh. The 127 deaths in Dublin last week included 40 of children under one year of age and 20 of persons aged 60 years and upwards; the deaths of infants showed an excess of 27, and those of elderly persons a decrease of 17, as compared with the respective numbers recorded in the preceding week. Six inquest cases and six deaths from violence were registered and 49, or more than a third, of the deaths occurred in public institutions. The causes of seven, or more than 5 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Surgeon A. R. Bankart, M.V.O., of the royal yacht *Victoria and Albert*, is specially promoted to Staff Surgeon for distinguished service.

The following appointment is notified:—Staff Surgeon R. Hill to the *Racer* for Osborne College, cadet sick quarters.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated July 28th, 1903):—F. J. W. Porter, D.S.O., O. L. Robinson, C. E. G. Stalkartt, T. W. Gibbard, C. J. Healy, H. J. M. Buist, D.S.O, G. B. Stanistreet, F. J. Wade-Brown, W. E. Hardy, J. E. Brogden, G. W. Tate, N. Faichnie, T. J. Lenehan, F. McDowell, F. W. Begbie, I. A. O. MacCarthy, C. W. Duggan, and J. C. Jameson.

Lieutenant F. C. Lambert, from the Seconded List, to be Lieutenant. Dated August 1st, 1903.

The undermentioned Lieutenants are confirmed in that rank:—J. G. Bell, M. G. Winder, J. Gatt, T. S. Coates, A. E. B. Wood, J. C. G. Carmichael, R. H. Bridges, J. A. W. Webster, J. B. Meldon, R. C. Wilmot, C. W. Holden, H. B. Kelly, E. M. Pennefather, G. H. J. Brown, B. H. V. Dunbar, D. Ahern, and D. G. Carmichael.

Captain A. Cuddon Fletcher has arrived in the Home District for duty and Captain W. J. Taylor joins the Home District for duty on Sept 1st. Captain F. Kiddle is ordered to the Western District for duty.

The undermentioned officer of the 3rd Battalion Australian Commonwealth Horse is granted temporary rank in the Army whilst serving in South Africa:—To be Captain (dated April 2nd, 1902): Captain Alexander Fullerton, medical officer.

The undermentioned officer of the 4th Battalion Australian Commonwealth Horse is granted temporary rank in the Army whilst serving in South Africa:—To be Captain (dated March 26th, 1902): Captain Adam Richard Stacpoole, medical officer.

The undermentioned officer of the 5th Battalion Australian Commonwealth Horse is granted temporary rank in the Army whilst serving in South Africa (dated May 22nd, 1902):—To be Lieutenant: Lieutenant George Lawaluk *Bell*, medical officer.

The undermentioned officer of the 6th Battalion Australian

Commonwealth Horse is granted temporary rank in the Army whilst serving in South Africa (dated May 19th, 1902) :—To be Captain: Captain Douglas Andrew Shields, medical officer.

The undermentioned officer of the 7th Battalion Australian Commonwealth Horse is granted temporary rank in the Army whilst serving in South Africa (dated May 19th, 1902) :—To be Lieutenant: Lieutenant George Alexander Webster, medical officer.

The undermentioned officers of the Field Hospital and Bearer Company of the Australian Commonwealth Horse are granted temporary rank in the Army whilst serving in South Africa, as follows (dated Feb. 12th, 1902) :—To be Majors: Major Terence Albert Green, D.S.O., and Major Neville Howse, V.C. To be Captains: Captain Frederick David Jermyn and Captain Arthur John Nyulasy. To be Lieutenants: Lieutenant William Arthur James, Lieutenant Henry H. Formby, and Lieutenant David Duncan Cade.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major James Mackay having resigned his appointment in the Volunteers, ceases to be an officer in the Army Medical Reserve of Officers. Surgeon-Captain W. J. Lawrie, having resigned his appointment in the Volunteers, ceases to be an officer in the Army Medical Reserve of Officers.

ROYAL ARMY MEDICAL CORPS (MILITIA).

The undermentioned Supernumerary Officers are absorbed into the Establishment: Captain T. W. G. Kelly (dated August 1st, 1903); Captain H. E. Mortis (dated August 1st, 1903): Captain J. E. O'Connor (dated August 1st, 1903); Lieutenant M. A. Cholmeley (dated August 1st, 1903); and Lieutenant H. Fox (dated August 1st, 1903).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 4th Durham: Surgeon-Lieutenant W. Gray to be Surgeon-Captain. Dated July 11th, 1903. 1s [illegible] W. Chalmers-Cowan to be [illegible])ated July 18th, 1903. 1st [illegible] Surgeon-Lieutenant W. Hind to be Surgeon-Captain. Dated August 1st, 1903.

Royal Engineers (Volunteers): 1st Bedfordshire: Surgeon-Lieutenant A. O. Hartley to be Surgeon-Captain. Dated August 1st, 1903.

Rifle: 1st Volunteer Battalion the Northumberland Fusiliers: Surgeon-Captain W. B. Mackay to be Surgeon-Major. Dated August 1st, 1903. 1st Volunteer Battalion the Royal Sussex Regiment: Harold Vaughan Pryce to be Surgeon-Lieutenant. Dated August 1st, 1903. 1st (Pembrokeshire) Volunteer Battalion the Welsh Regiment: Second Lieutenant R. D. Evans resigns his commission and is appointed Surgeon-Lieutenant. Dated August 1st, 1903. 6th (Fifeshire) Volunteer Battalion the Black Watch (Royal Highlanders): Surgeon-Lieutenant J. S. Mackay to be Surgeon-Captain. Dated August 1st, 1903. 3rd (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Captain J. Strang to be Surgeon-Major. Dated August 1st, 1903.

FEES FOR CIVILIAN MEDICAL PRACTITIONERS.

By a recent Royal Warrant it is provided that when a detachment of the army is not within reach of a military medical man, the officer commanding may call in a civilian medical man to render medical attendance to the officers and men belonging to the detachment, and to other persons entitled thereto at the public expense, at the undermentioned yearly rates (which includes the cost of medicines) :—If there are less than ten persons, £5; if there are ten persons or more, for every complete 25, or a portion of 25, provided that the total emoluments for all services, exclusive of the examination of recruits, shall not in any instance exceed £1 for any one day, £10. In special circumstances, and when the medical duties required of the civilian practitioner do not come within the range of ordinary medical attendance, the remuneration shall be at such rates as may be determined by the commander of the army corps or the officer commanding a district lying outside an army corps command.

MENTIONED IN DESPATCHES.

In despatches relating to the Kano-Sokoto Campaign, published in the *London Gazette* of July 31st, Mr. W. H. Langley, L.R.C.P., L.R.C.S. Irel., principal medical officer, is mentioned as having worked hard and well throughout the operations.

NEW ROYAL ARMY MEDICAL CORPS UNIT.

A new unit of the Royal Army Medical Corps to be designated No. 20 Company was formed at Salisbury Plain on August 1st, under the command of Major C. E. Faunce, R.A.M.C. All officers, warrant officers, non-commissioned officers, and men of the Royal Army Medical Corps at present serving on Salisbury Plain, with the exception of those temporarily employed, will be taken on the strength of the new company.

Correspondence.

"Audi alteram partem."

PHIMOSIS AND CANCER OF THE PENIS.

To the Editors of THE LANCET.

SIRS,—As some emphatic statements have lately been published to the effect that phimosis is a potent cause of cancer of the penis[1] which I believe convey an erroneous impression, I shall be obliged if you will allow me brief space to justify my contention. An elongated, tight, phimotic condition of the prepuce is one of the very commonest anomalies and a large proportion of the male population is attacked in this way, often to an extreme degree. If therefore phimosis be, as alleged, a potent cause of cancer of the penis this particular local variety of cancer should be very common. The fact is, however, that cancer of the penis is one of the rarest forms of malignant disease—less than 4 per cent. of all cancers in men being of this variety.[2] If phimosis were really a potent cause of cancer of the penis how very different would this proportion be. According to American observers the negroes of that country are almost universally affected with phimosis, yet among these people cancer of the penis is of even rarer occurrence than in England; thus Rodman of Philadelphia has never seen a case in the practice of a lifetime and the Philadelphia hospital registers for a period of 30 years do not record a single case, although other forms of cancer are common. The experience at Louisville is similar, for out of 207 deaths from cancer in negroes not a single one was due to cancer of the penis.

I am, Sirs, yours faithfully,

Clifton, Bristol, July 30th, 1903. W. ROGER WILLIAMS.

THE USES OF PILOCARPINE.

To the Editors of THE LANCET.

SIRS,—The use of pilocarpine in pneumonia, mentioned by Mr. William Roper in THE LANCET of August 1st, p. 342, was first brought to notice by Sziklai some years ago. By him it was regarded as a specific for that disease, but many observers have doubted this—notably, Rosenberg who holds that pilocarpine, even when given in physiological doses, aggravates the symptoms of pneumonia. I have notes of 15 cases where treatment was commenced with pilocarpine nitrate alone, given hypodermically in doses of one-tenth to one-fifth of a grain twice in the 24 hours. They were all adult hospital cases in the early stages of pneumonia. In one case, that of a man apparently in good condition, after the second dose severe dyspnœa suddenly came on, followed rapidly by collapse and heart failure. In spite of atropine and cardiac stimulants the man never rallied. In another strangury with retention of urine, severe vomiting, diarrhœa, and heart failure occurred after three doses, but in this case the patient eventually made a protracted recovery. In three others the gastric irritation produced nausea and vomiting which was so marked that the further use of the drug had to be discontinued. The rest made uneventful recoveries. Afterwards I tried several cases with pilocarpine in conjunction with strychnine with good and satisfactory results. With the exception of the two cases mentioned I have not met with any heart failure; this I attribute to the action of the free sweating in lowering the temperature of the body and at the same time ridding it of some noxious products of tissue waste. I am certain also that in some of the cases the pilocarpine has had a good effect on the enfeebled digestive powers. At the same time I am satisfied that all these effects can be obtained by the use of other and much safer drugs.

---

[1] Polyclinic, May, 1903.

[2] Of 2669 men with cancer under treatment in London hospitals I have found that only 106 had cancer of the penis, and of 2831 similar cases in Vienna hospitals Gurlt found only 108 thus affected.

I am, Sirs, yours faithfully,
August 3rd, 1903. J. F. HODGSON, M.D., Ch.B. Vict.

To the Editors of THE LANCET.

SIRS,—The letter of Mr. W. Roper in THE LANCET of August 1st (p. 342) suggests a few further remarks from me on the dose and action of pilocarpine in the treatment of pneumonia. One of the chief uses of the drug in this disease seems to consist in the relief of pleuritic pain by liquefying "dry" pleuritic exudation, thereby permitting a freer inspiratory excursion and relieving negative pressure on the heart, the unembarrassed action of which it is so desirable to try to maintain. The second most important action is secretory and that this is an active process of the epithelial cells and not dependent on filtration is, I think, sufficiently demonstrated, apart from the well-known experiment on the parotid gland, by the almost constant initial rise of temperature of from ½° to 1½° F. after its administration. In this way the toxin of pneumonia, which is probably intracellular, is evicted.

The dose of one-third of a grain, as suggested by Mr. Roper, is by no means free from danger, as in addition to the depressing effects of purging and vomiting which it often produces the bronchial secretion may be so profuse as to cause alarming symptoms of asphyxia in debilitated subjects and more especially in those in whom toxæmic symptoms are a marked feature. Such patients often only half expectorate and in the deep inspirations following a severe attack of coughing a quantity of fluid mucus may be sucked into the infundibula of the sound portions of both lungs, resulting in serious consequences.

Until further clinical experience of this powerful drug is obtainable I do not consider it safe or prudent to give more than one-tenth of a grain hypodermically, at all events in pneumonia. This dose I employed in South Africa in 1901, and from a subsequent experience of over 30 cases in Kaffirs and whites, chiefly the former, I have no reason to use a larger quantity. One-third of a grain may have its uses in other diseases but all that is required in pneumonia is accomplished by the smaller dose which may be repeated on the following day if necessary.

I am, Sirs, yours faithfully,
Bournemouth, August 3rd, 1903. E. CURTIN, M.D. R.U.I.

CONTINUOUS RECTAL ALIMENTATION.

To the Editors of THE LANCET.

SIRS,—Information kindly supplied by Dr. H. D. Rolleston enables me to state that a method almost identical with that which I recently demonstrated at the Swansea meeting of the British Medical Association had been described in 1886 by Dr. D. J. Mackenzie of Glossop.[1] The chief point of difference is in the mode of regulating the rate of delivery. Dr. Mackenzie, using a tube of small diameter, varies the level of the vessel containing the fluid for injection. The screw-clip which I have employed is, perhaps, a simpler way of controlling the outflow. The apparatus is also simplified by immersing part of the length of the tube in a basin of hot water as this obviates the necessity for applying a constant supply of heat to the container. Other modifications of the same method may have been put into practice references to which would be much valued.

I am, Sirs, yours faithfully,
Curzon-street, W., August 4th, 1903. WM. EWART.

THE TREATMENT OF GOITRE BY DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—Kindly allow me to make some further remarks on this subject, especially as some of your correspondents appear to have a little misunderstood my previous letter, though it is encouraging to find that the general opinion is in favour of my views and that so many have had favourable experience in the same direction. Of course, I attribute no *positive* therapeutic influence to distilled or rain water; no "*specific*" influence, that is to say. The influence is *negative* and lies simply in its eminent purity and freedom from possible sources of contamination, as I think my letter sufficiently makes manifest.

No doubt, for many years past, the occasional connexion of the development of goitre with drinking water of an imperfect purity ("bad" water) and especially with "hard" water—i.e., water containing lime or earthy salts in solution —has been observed or suspected, and a change of drinking supply recommended. Instances might be multiplied of this. Some years ago, I am informed, quite an epidemic of goitre prevailed at Ackworth School in Yorkshire. The water-supply was changed and it disappeared. I have myself recommended for years that in such cases some pure soft water or rain water should be substituted with advantage.

The important point, however, is that in the cases I gave the water-supply is quite unexceptionable. The waters supplied by the Lancaster and Fylde Companies are both regarded by experts as beyond cavil both as regards purity and hardness. They are pre-eminently pure and soft waters. And yet they must contain an influence deleterious to the thyroid gland, else why the rapid change when distilled or rain water (in other words, distilled water, artificial or natural) was substituted? What is this influence or element in the water—this "goitrous poison," as Dr. Stevenson truly terms it? It remains unknown and undiscovered. It was at one time supposed to be lime but that has been disproved; indeed, the present cases would dispose of such a theory. In the cases I described it was the known purity of the water that lulled suspicion in my mind for some time and this no doubt also misled the authorities in London and Germany to whom I alluded. I find no reference in any text-book I have consulted to the use of distilled or rain water in such cases. The goitre is regarded as due to other causes.

Your correspondent, Dr. Stevenson, in his letter in your issue of August 1st, p. 340, speaks of the absence of goitre in Constantinople and Venice where rain water alone is drunk. I have also a letter from a medical correspondent who tells me that in a tract of Queensland containing a population of 20,000, where the people drink rain water only, a resident there for seven and a half years has never heard of a case. If these be proved facts, and I have no reason to doubt them, they furnish highly important factors in a knowledge of the causation of the disease and go far to prove that *water and water alone* (or rather that with which water has been accidentally associated in its course over and through the earth) *is responsible for goitre.* I am therefore justified in insisting that there are deleterious matters, beyond the reach of the analyst to determine, by which water may, and often does, become affected in its course towards collection and distribution in the usual way. The "goitrous poison" is evidently not acquired in the air, or rain water would manifest it; it must therefore be acquired in the earth.

That the poison attacks usually a few susceptible individuals only is but another illustration of the parable of the "sower and the soil," and when the conditions are very favourable to the development of thyroid mischief (when the susceptibility is great) it is not to be wondered at that the effect will remain even after the cause has been removed, and that the goitre persist though perfectly pure water be consumed hereafter.

I am, Sirs, yours faithfully,
Lancaster, August 3rd, 1903. C. A. RAYNE, M.D. Lond., &c.

APPENDICITIS—A CORRECTION.

To the Editors of THE LANCET.

SIRS,—In your report of the Medicine Section of the British Medical Association meeting at Swansea, the impression of what I said is a little misleading. I stated that in subacute appendicitis, particularly as occurring in elderly people, an aperient with belladonna in physiological doses and assisted by hot fomentations, &c., was often useful. I went on to say that in the acute forms where the onset was not so extremely severe as to require immediate operation, large doses of the tinctures of opium and belladonna in their usual relative proportion (three to one), given frequently until, and except when, the patient was asleep, and continued, with water only also permitted, for several days gave me good results. The water, until the vomiting had ceased, was given in teaspoonful doses every quarter of an hour.

---

[1] Cf. Brit. Med. Jour., June 19th, 1886, vol. i., p. 1161.

I might add that in two cases in which I had sought the coöperation of a surgeon, but in which it was decided not to operate, *the inflammation was so severe that in the one at an* operation undertaken 18 months later the appendix was represented only by adhesions and caseous débris was found along the pelvic border up to and even beyond the pubes. In the other, a hospital case, a subphrenic abscess developed and burst through the lung, the patient's life being only saved by large doses of brandy and strychnine hypodermically every half-hour at first; both of these patients are now in excellent health. I trust that you will be able to find room for this addition to your report. With thanks in anticipation, I am, Sirs, yours faithfully,

Chester, August 3rd, 1903. HENRY W. KING, M.D. Edin.

GRANADA: ITS HIGH DEATH-RATE AND CONTAMINATED WATER-SUPPLY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

AFTER an absence of many years, finding myself in Madrid for the International Congress, I returned to Granada anxious to see what improvements had been effected in that most picturesque but deplorably unhealthy town. After spending six hours in the train to accomplish a journey of 77 miles from Bobadilla junction I arrived at this ancient Moorish capital and it became at once apparent that there had been some attempt at haussmannisation. A new boulevard has been cut right through the centre of the *town, letting light and air into some dark and unwholesome places.* It was the Chamber of Commerce that took the initiative in piercing through one of the worst quarters so as to create a new and broad street. It managed to buy up nearly all the houses by means of friendly negotiations. The poorer sections of the population who were thus forced to quit their tenements went to live in the Albaicin quarter, where many empty houses may be found, though in the days of the Moors this part of Granada was thickly populated. Beyond the cutting of this new thoroughfare and the creation of an institution for the provision of lymph from the calf, little or nothing seems to have been attempted to improve the sanitation of the town. There has been a good deal of talk about the most urgent of all needed reforms, the water-supply, but nothing has been done. Yet it would be impossible to find any place where the necessity of protecting the water-supply has been more frequently and emphatically indicated. Countless thousands of human beings have been poisoned and brought prematurely to the grave by the water drunk at Granada. This fact is proved most conclusively by the statistics, by the high death-rate, and by appalling epidemics, yet year after year rolls by and nothing is done. Once more, therefore, the ghastly story must be repeated, and if the fear of death and the desire to save life and to reduce the sum-total of human suffering do not suffice to make the inhabitants of Granada take action then perhaps they may be awakened by a sense of shame when they find themselves publicly denounced. Public contumely if nothing else may induce them to endeavour to remove so disgraceful a stain on their local and national reputation. Good work has been done in Spain. In spite of poverty and political troubles various improvements have been effected at Madrid and elsewhere, but nowhere was there greater need of such measures than at Granada; no town has suffered so much; nowhere is the danger more evident.

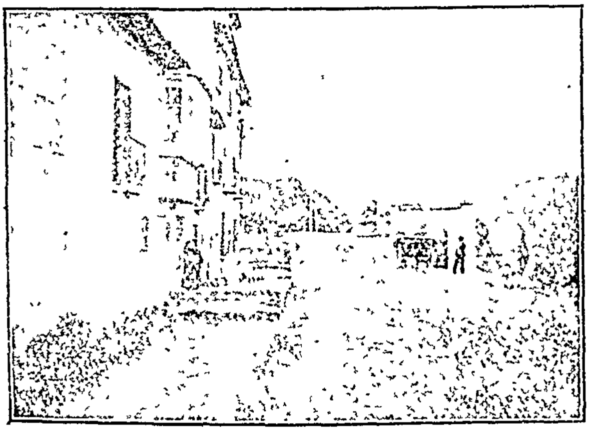
To render this clear to those who are unacquainted with the local history of Granada some words as to the past are necessary. Thus, according to official figures, the rate of mortality in Granada during the ten years 1860 to 1870 inclusive was equal to 40 4 per 1000 per annum. During the next decade there was no material improvement, and then in the following decade came the punishment, the appalling cholera epidemic of 1885. It will be remembered that the deaths were then so numerous that it was impossible to bury the victims of the cholera and hundreds of bodies without coffins lay rotting in the open air. The stench was blown over to the suburb of Zubia, and the epidemic spread to that district, killing among others the Archbishop of Granada. It was by the employment of criminals, who were beaten with sticks, urged forward at the point of the bayonet, and threatened by loaded rifles, that Lieutenant Varona saved the situation and finally had the accumulation of bodies *buried at the rate of 500 per day. What all this meant may* best be understood when the fact is recalled that there were 313 deaths from cholera in one single day out of a population of 75,000. This would mean, if calculated at the same proportion, more than 20,000 deaths in Greater London from cholera alone, and this in one single day. Perhaps in such circumstances difficulties might arise in London as in Granada, for it would be no easy matter to bury so large a number of cholera-stricken people. It is not necessary, however, to enter into further details concerning this hideous epidemic. It caused a profound sensation at the time not only in Spain but throughout the world and efforts were made to send help to the sufferers. A special fund for that purpose was opened at the Mansion House in London and met with a generous response. But while help thus came from afar who would have imagined that those on the spot and who had been, and in the *future will be, the first to suffer would do nothing* for themselves? The official statistics published before the outbreak of the cholera epidemic in 1885 showed that about one-third of the deaths occurring in normal times at Granada were due to intestinal disorders. This very high proportion is ascribed to the pollution of the water-supply. Nobody challenges this opinion and yet nothing is done. *The terrible cholera epidemic of 1885* would, it was thought, bring about the long-needed reforms; nevertheless there is no change. The death-rate has been slightly reduced, probably as a result of the new boulevard and the abolition of some slums, but it is still equal to 38 per 1000 per annum. The deaths due to intestinal disorders are equal to 25 per cent. of the total deaths, whereas taking Spain as a whole they only amount to 14 per cent. Therefore the conditions that produce this form of disease are exceptionally prevalent at Granada.

These fatal conditions are well known. They have been denounced over and over again and there is absolutely no excuse for their continued existence. Granada is most favourably situated. Everything except the ignorance and apathy of its inhabitants combines to make it what it was in the days when the Moors brought their science and civilisation to Europe. There is an exceptionally ample supply of pure water coming from the neighbouring hills, the offshoots of the Sierra Nevada, but so careless are the inhabitants that this water is rendered most foul before it reaches the houses where it is used for drinking purposes. Again, the topographical position of the town is such that there are exceptional facilities for drainage and beyond there are vast plains where the sewage could be utilised for irrigation purposes and the processes of purification would thus render service to local agriculture It was in the year 711 that the Moors under Tarik defeated and killed the last Visigoth king and soon after they began to build and notably at Granada. It was not till the year 1492 that this town was recaptured by the Spaniards. Now the Moors at once introduced a system of drainage and of water-supply and, for that distant period, what they did may well be qualified as advanced sanitary engineering. The Moors built sewers and instituted water-carriage drainage and sewage farms many centuries before anything of the sort was attempted in Christian Europe. When the Christians got back to Granada they did not know how to utilise the sanitary works which the Moors had left behind Instead of attending to the sewers, repairing and rebuilding them, they were left to decay and their contents were allowed to escape into the subsoil. This is all the more dangerous as the water-supply is delivered in small earthenware pipes of the same manufacture as that which existed in the times of the Moors and this would not now be qualified as sanitary material. It is not enamelled inside; it is light, brittle, and porous. The streets are so narrow that these conduits must be laid close to the sewer. If they sometimes escape contamination from the leaking sewers it is because they are laid on a level with the top rather than the bottom of the sewers. In this latter case, however, they are so near the paving-stones that they are frequently contaminated by the dirt of the street. Sometimes these pipes are broken by the passage of a heavy cart or some sudden shock, and then the water comes bubbling up into the street, causing a pool, a mess, a little rivulet, and an accumulation of mud which will remain for several days or weeks before the pipe is mended. One of the dangers of a large almost inexhaustible water-supply is that when a pipe bursts or leaks there is no urgent necessity to prevent waste and therefore accidents that lead to the contamination of the supply remain unrepaired for an indefinite time.

Instead of using bent or elbow-shaped pipes there are junctions formed in various parts of the street. These are primitive and clumsy contrivances and simply consist of little pits where pipes coming from different directions meet. As the pit fills the water runs down the different pipes and thus it is made to turn the corners and to flow from the street at right angles into the houses on either side. Over these little distributing catch pits, if they may be so described, a flagstone is placed and a circular aperture about five inches in diameter is cut out of this stone. A stone of about the same size is jammed in. Sometimes this gets loose and is kicked away and there is a hole through which the drinking water may be seen from the street causeway, through which also the dirt from the street, from the boots of the people passing by, falls without let or hindrance into the water which the people drink. Such a hole I noticed opposite the door of a medical practitioner's residence and close to the Ayuntamiento, yet neither the frequenters of the town hall nor the practitioner would seem to have taken the slightest trouble to remedy this evident cause of contamination of water. That poverty-stricken people who do not know how to read or to write should not notice these things can be understood; but here we have members of the municipality, members of the medical profession, and others who should know better, walking daily by places where the water-supply is contaminated, accidentally kicking the dust off their own boots into the water, and yet they do not seem to make the slightest effort to save themselves and the rest of the population from this great danger. Such apathy is truly extraordinary.

Nor is it within the walls of the town and in its streets only that the water is contaminated. Outside the water arrives in open channels. During the great cholera epidemic of 1885 it was pointed out that a lady who contracted the disease and died after only eight hours' illness had a "vista" window to her room which was actually suspended over the uncovered stream of the Granada water-supply. Nearly 18 years have elapsed since this occurred. The population on the banks of the stream has increased. Nothing whatever has been done to protect the supply and I was able to photograph the house with its projecting or "vista" window still hanging over the water-supply. (See Fig. 1.) There is, indeed, an entire terrace of houses overlooking the water and on the other side of the stream there is a high-road which also contributes its supply of dust and dirt to the water. Coming still nearer to the town the stream and the road pass by a high wall bounding and upholding a terraced garden. It was raining when I visited this place and I was able to take a photograph which showed the drainage from the garden, mixed, of course, with whatever manure may be used in the garden, flowing from water-spouts right into the stream. (See Fig. 2.) It will be noticed that at the point where I took the photograph the stream leaves the base of the wall, passes under the high road, and comes out on the other side of that thoroughfare. Not a thought seems to be given to the many chances of contamination that so evidently exist. A roughly constructed bridge spans the stream, the sides of the roadway crumble into the water, and the drainage from a manured garden or the dust and dirt of a terrace of houses all fall into the water without let or hindrance. At last, when close to the town by the Puerta de los Molinos, the stream is roughly roofed over with flagstones that fit very loosely. Here there is a cluster of houses and cottages built right over the stream. In the small backyard of one of these houses, where there was a stable with manure on the ground, the flagstones covering the stream were bare and through the interstices I could see the water passing underneath. After thus collecting some of the liquid stable manure from the back of this cottage the stream goes under an open space between houses. Here there is a rough track leading up a hillside and down the centre of this road there is a very small rivulet or gutter. Now the inhabitants of the surrounding houses, without thought of the water-supply passing below, have piled up some big loose stones so as to create a small dam and though there is not much water coming down the side of the hill at this point, still it suffices with the aid of the stones to form a few little puddles where the women can wash the dirty linen. Between these puddles and the water-supply flowing beneath them there are only a few inches of earth and locse-fitting flagstones. The

FIG. 1.



Photograph taken in June, 1903, of houses where cholera was found in 1885. The "vista" window of the room where a fatal case occurred, still projects over the unprotected water-supply.

FIG. 2.

High wall bounding a terraced garden which is drained by water-spouts into the open water-supply.

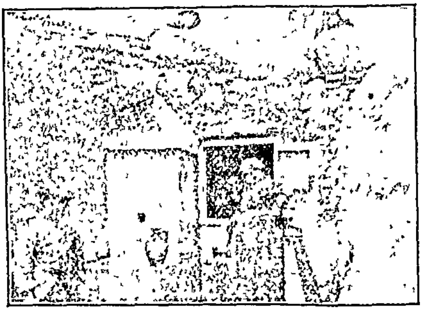
FIG. 3.

Women washing dirty linen at a surface stream beneath which, and in communication with which, flows the water-supply.

water soiled by the dirty linen must therefore to some extent fall into the drinking supply. The women who were washing when I took the photograph were kneeling immediately upon the roof of the channel or aqueduct which passes underneath and conveys to Granada a very large portion of the water drunk in that town. (See Fig. 3.)

There are three main sources feeding different parts of the town, the acequia Gorda, the acequia Cadi, and the acequia de San Juan, and I have described that which follows the Camino de Guiejar and supplies the most important part of the town. Of the other two sources one supplies the Alhambra Hill and the other the Albaicin Hill and quarter. In regard to the latter I also took a photograph on the side of the hill, not far from the church of San Juan. The canal here is by the side of one road and under another road that is on a higher level. A door has been cut into the side of the aqueduct and people come and dip their pitchers into the water, taking what they need for domestic purposes. Of course, the outsides of these jugs and pitchers are more or less soiled and yet they are dipped into the water. To prevent this obvious cause of contamination the doors during the time of cholera were locked and a pump was built by the side of them so that water could be pumped out. But this was found to be a slower process than dipping the pails and jugs into the water, so the locks and pumps were destroyed and the simple, quick but dangerous process was renewed. The photograph I have taken shows that a road passes by the side of the water canal, another road above, that the door giving access to the water is open, that a woman is about to dip a bucket into the water, and that the pump which was to prevent this form of contamination has been broken. (See Fig. 4.) Many other such means of direct ingress to the water-supply exist along the whole route.

FIG. 4.



Woman about to dip her arm and jug, both presumably dirty, into the water-supply, the pump being broken.

The water thus carelessly brought to the town is not filtered but delivered just as it is to the inhabitants. It is not often drunk just as it arrives. Not so much for the purpose of purifying as for the sake of obtaining cool water, great earthenware jars, some six feet deep and from two to three feet wide, are sunk in the soil below and underneath the houses. Then when the flow of water from the pottery pipes in the streets seems clear and free from dirt bucketfuls are drawn off and poured into these jars—jars of the same type as those in which Ali-Baba hid his 40 thieves. Here the water remains and is perhaps not touched for weeks. The object in view is to have cool water; the necessity of possessing pure water is not yet understood in spite of the lessons which cholera and the high death-rate should teach. Nothing can be more discouraging than to see that so little progress has been accomplished, though the need of a few elementary measures of sanitation is so very obvious. The statistics show that the death-rate of Granada is just about double what it should be, and this in the circumstances is not surprising. Such a high death-rate must give a corresponding sick rate. If the people of Granada are indifferent to the immense amount of human suffering which this entails, and which could easily be prevented, then they might at least think of the cost, the loss in money that these unhealthy conditions cause. They are always complaining of their poverty and certainly a very large proportion of the inhabitants of Granada are professional beggars and nothing else, but with better health better work could be done, and also many more tourists and visitors would bring wealth to the town. As it is, travellers and pleasure seekers are afraid to go to Granada, and those who do get there visit the Alhambra as quickly as possible and then hurry away, deeming themselves lucky if they only suffer from a passing attack of diarrhœa as the natural punishment for their imprudence in going to such a place. In these circumstances it would pay well to protect the water-supply and to substitute iron mains for the present system of open canalisation and porous pottery which along the whole of its course is accessible to contamination.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Birmingham and Midland Eye Hospital.

THE annual report of this institution, which has just been issued, alludes with satisfaction to the improvements in the out-patient department and to the new operating room which has been found of great service by the medical staff. The subscriptions have slightly increased during the past year but the donations and legacies have fallen off. The total payments for the year amount to £7800 5*s.*, an increase of £981 10*s.* 3*d.* compared with 1902. The total number of patients treated, exclusive of those on the books at the commencement of the year and exclusive of renewals, was 27,384, of whom 1022 were in-patients. The total number of attendances of out-patients was 65,394. No fewer than 731,345 patients have been admitted since the foundation of the hospital in 1823. A number of persons bringing out-patient tickets had been refused attendance on the ground that they were in a position to pay for advice. The committee expresses the hope that subscribers will endeavour to prevent the abuse of the benefits so liberally offered by the hospital. At the annual meeting of the subscribers to the hospital, the Lord Mayor, who presided, drew special attention to this part of the report. He was very sorry to see that the out-patient department was subject to abuse. It was, in his opinion, a great shame that any institution dependent upon public support should have to refuse cases in which patients were in a position to afford private treatment. That was one of the difficulties of the ticket system. It was the duty of the subscribers not only to give their subscriptions but also to see that the tickets were properly distributed. Under an ideal system they would not have tickets at all, but he feared that a great many subscribers would be apt to neglect the hospital if they were not constantly reminded of the usefulness of the institution by the demand for tickets.

The Birmingham Crematorium.

The new crematorium for Birmingham, occupying about an acre of ground in a country spot some distance from any dwelling-house and surrounded by trees, at Sheldon Coppice, near Rocky-lane, Perry Barr, is rapidly approaching completion and will be opened during the month of September by Sir Henry Thompson. The company which has provided it was founded in 1901 and Mr. F. B. Osborn was the architect. The chapel, which is approached by a gateway and drive from the main road, has a large porch or vestibule which is 50 feet by 25 feet and 40 feet high, with an open timbered roof. On one side are a vestry and registry office, with a separate entrance, and on the other side is a small mortuary chamber. The chapel is principally lighted by lofty clerestory windows and underneath these on both sides are recesses for the reception of urns containing the ashes of the dead. If relatives prefer it these urns can be placed in cloisters of ornamental design which they will be at liberty to erect in the grounds. The catafalque is placed at the end wall at the opposite side to the entrance and behind it is a window leading to the intermediary chamber. On the north-west side is a lofty ornamental tower, 80 feet in height, containing the stack. The temperature of the incinerating chamber will be about 2000° F.

Dinner to Dr. Alfred Hill, the Retiring Medical Officer of Health.

A dinner, at which an illuminated address was presented to Dr. Hill by the Lord Mayor, was given last week by Alderman Cook, chairman of the health committee. A number of members of the council and officials, including Dr. J. Robertson, the new medical officer of health, were present. In proposing the health of the guest of the evening, Alderman Cook said that Dr. Hill might be said to have seen almost the birth—certainly the beginning of organisation on anything like an adequate scale—of the sanitary department. At first the committee was called the borough inspection committee. Later it became the sanitary committee and after the Public Health Act came into force the health committee. He (the chairman) entered the council in November, 1872, and Dr. Hill was appointed medical officer in the December following. Their connexion had, therefore, been long. In those days there were only eight health inspectors, now there were over 30. It went without saying that the sanitary state of the city in those days was far from good. The death-rate was over 25 per 1000 and there were thousands of middens poisoning the air, the total area of which was reckoned at that time at about 13 acres. Nothing worse could be imagined. They had got rid of nearly all those middens and they were going in for further improvements. Alderman Cook also alluded to Dr. Hill's connexion with the closing of the city wells, the building of the city hospital, and other incidents of his career.

Vaccination Fees.

The attention of the board of guardians has been called by one of its number to the great increase in the amount of the vaccination fees which has been one of the results of the Act of 1898. Prior to that Act any person wishing to be vaccinated free of cost had to apply at the vaccination station; now the vaccination officer has to call if the authorities receive a notification to that effect, and it seems that many persons who formerly employed the family practitioner for this purpose now save his fees by engaging the services of the public official. Taking the four years prior to the Act of 1898 becoming operative, it is found that the fees paid in respect of the parish of Birmingham were respectively as follows: 1896, £387; 1897, £361; 1898, £345; and 1899, £293; or an average of £346 per annum. That was on a scale whereby the guardians paid 2*s.* 6*d.* for each successful vaccination. Under the new Act an order was issued by the Local Government Board making the minimum payment 5*s.*, in addition to which the surgeon receives 1*s.* for the registration of every child—whether vaccinated or unvaccinated—born in the parish should the baby reach the age of four months. As a result the aggregate of fees, which had been steadily declining, has much increased, as will be seen from the following totals: 1900, £1132; 1901, £1164; 1902, £1154; and 1903 (the official year ends on March 31st), £1877. This gives a yearly average of £1333, as compared with £346 for the preceding four years—an increase of practically £1000 per annum. The board of guardians has on various occasions complained to the Local Government Board as to the amount of the fees and has been met with replies that the communications have been received. At their meeting on July 29th the guardians passed a resolution pointing out that they had for the past five years called the attention of the Local Government Board "to the very excessive sums they have been compelled to pay in fees to the vaccination surgeon" and emphatically protesting against "the indifference with which these protests and remonstrances have been treated by the officials of the Local Government Board." The clerk was instructed to send this resolution to the Board in question.

August 4th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Aberdare Valley Colliery Surgeons.

UNTIL about three years ago the colliery surgeons in the Aberdare Valley received 2*d.* in the pound of the colliers' earnings as payment for their services. This poundage was increased to 3*d.* upon the representation of the surgeons that their out-of-pocket expenses had very considerably increased, noticeably in connexion with the salaries of their assistants. Within the past few months an agitation has been going on among the men employed in the Aberaman and Cwmaman collieries having for its object the adoption of a new scheme of medical attendance and at public meetings held on July 20th definite proposals which had been drafted by a committee of the workmen were approved. There are at present three surgeons engaged under the poundage system and they pay the whole of the expenses of their practices. Under the new scheme it is proposed to engage one medical officer at a salary of £600 per annum and five assistants each at a yearly salary of £200. The committee is to defray all the expenses of the undertaking, including the supply of drugs and instruments, stable expenses, house rent and taxes, and expenses of management. During the year ending June 30th, 1901, the poundage produced £4668 and it is estimated that under the altered conditions there will be a saving of £1500 or £2000, which sum it is intended to use in the maintenance of a cottage hospital. The scheme upon paper appears to work out well, but there are so many objections to its practical working that it is a little surprising to find it meeting with the approval of some of the leaders among the workmen. First of all the estimate of income is based upon the earnings of the men when wages were high and it is very doubtful whether this estimate will be maintained in the future; while a strike of any considerable duration would ruin the scheme. During the strike of 1898 for nearly six months many surgeons did not receive any payment at all from the colliers, although their surgery and other expenses were still going on and they continued to attend their patients. The proposal to employ assistants in place of some of the present surgeons is hardly likely to be satisfactory, if for no other reason than the constant change which will be taking place. A really satisfactory and competent assistant will not stay very long in a colliery district at a salary of £200 per annum when he can earn quite as much as, or even more, in a locality having pleasanter social and physical surroundings. Lastly, there is the question of the engagement and control of the assistants. If they are engaged by the committee of workmen difficulties of the gravest character will arise and the men may one day find the machinery of their medical service at a standstill. It would be interesting to know what the wives of the colliers think of the proposed alteration.

Butchers and Tuberculous Meat.

The butchers and cattle dealers of Cardiff, Swansea, and the surrounding districts are endeavouring to arrange a scheme whereby after a certain date no cattle above a given value shall be purchased either by auction or privately unless such cattle are warranted by the vendors free from tuberculosis. At a conference of butchers held at Cardiff on July 27th a committee of butchers, farmers, auctioneers, and cattle dealers was formed and a resolution was referred to them expressing the opinion that all cattle of not less value than £8 per head, calves and pigs of £1 10*s.*, and sheep of £1 sold in Glamorganshire or Monmouthshire should be guaranteed by the vendor free from disease. It was stated by one speaker that a large firm of Newport cattle dealers had instituted a system of insurance and during the past three years had paid £300 in compensation for cattle which had been sold by them and were ultimately found to be unfit for food.

Duties of a Workhouse Medical Officer.

An inquest was recently held on an old man who had died in the Newton Abbot (Devon) workhouse on a Sunday and the board of guardians, at their meeting, which took place on July 30th, were informed that the jury considered that the guardians should request their medical officer to visit the workhouse on Sundays in future. It was explained at the meeting that in such matters it was left to the discretion of the superintendent nurse to telephone to the medical officer if his attendance on that day was required and that there was not the slightest reason for him to visit in this instance, as the patient died from exhaustion due to old age. The guardians eventually resolved unanimously to let the communication lie on the table.

August 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal University of Ireland.

AT a meeting of the Senate of the Royal University of Ireland held on July 31st it was unanimously resolved, on the motion of Sir Christopher J. Nixon, M.D., to admit the veterinary profession to university status, subject, of course, to students fulfilling all the requirements as regards curriculum and examinations.

The Recent Epidemic of Small-pox in Dublin.

The small-pox epidemic has now completely disappeared from Dublin. The isolation hospital at the Pigeon House Fort has been evacuated and the convalescent patients at Bencavin will soon be discharged. Since the end of January 260 patients have been treated and there have been 34 deaths. The citizens have good reason to feel thankful that the disease has left them after six months instead of after its usual sojourn of years—this, moreover, notwithstanding the long delay and difficulty in obtaining an isolation hospital. It occurs to me that the lesson to be gathered from the happily short history of this outbreak is worth remembering, for it points with no doubtful finger to the prepotent efficacy of vaccination. Other means are valuable but Jenner's remedy remains, *longo intervallo*, easily the chief. It has of late years and recently been widely availed of in Dublin where the anti-vaccinationist is unknown and where accordingly a large amount of variolous immunity always prevails. Its value as a defence was clearly evident in this outbreak. Of the 260 patients who suffered not one proved to have been revaccinated and the entirely casualty list was practically supplied from unvaccinated patients. Vaccination really saved the situation and no unprejudiced observer can doubt in that regard the value of the enlightened advice of Dr. Walsh, the Roman Catholic archbishop, repeated every week to the ignorant poor of Dublin from pulpits in the city.

The Irish Medical Association and the Local Government Board.

The generous support which the medical profession and the Irish Medical Association have recently given to the claims of the Poor-law medical officers of Ireland has emboldened them to try to improve their position by means of parliamentary action. The Irish members of Parliament, however, have apparently failed to accomplish much for them. On July 30th Mr. Patrick O'Brien asked the Chief Secretary for Ireland whether he was aware that the Ballinasloe board of guardians had failed to procure a medical officer for the Killan dispensary district at a salary of £120 per annum; whether he could say if any medical men stated to that board in writing at what salary they would be willing to accept office, and, if so, at what amount; and whether he could say how many vacancies existed at present in the Irish dispensary service and for what period each district had been vacant, what fees were being paid per week to the temporary medical officers in charge of these districts, how much per week was paid in advertising the vacancies in each union, and how much of the total cost of locum-tenents' fees and advertisements was refunded by the Treasury to the guardians in each case. Mr. Wyndham replied that the vacancy in Ballinasloe union was created on June 20th. The guardians advertised for a medical officer at a salary of £120 a year. Two gentlemen offered their services at £200 a year. The guardians, however, decided to re-advertise at the former salary. There are eight other vacancies; two occurred in November last and the remaining six are of very recent creation. In reply to a further question by Mr. Delany as to whether those vacancies were caused by intimidation exercised by the Irish Medical Association the Chief Secretary made the following significant remarks:—

> I do not know that intimidation is the proper word. There have, however, been speeches made and resolutions passed suggesting that medical gentlemen should not accept appointments at less than £200 a year. I know that medical officers in Ireland have a great deal of [illegible] salaries are not high, but for [illegible] be more deserving of recognition [illegible] nd awaited the report of the Vice-[illegible] into the amalgamation of unions [illegible]

In THE LANCET of August 1st, under the heading "Parliamentary Intelligence" another question from Mr. Delany with the Chief Secretary's reply was reported. In reference to that case a special meeting of the Tullamore board of guardians was held on July 28th when the following letter was read from the Local Government Board:—

> With reference to the resolution of the Tullamore board of guardians of July 14th, the Local Government Board desire to state that the guardians should call on Dr. McCarthy to take up the duties of medical officer of Killoughey dispensary district. In the event of Dr. McCarthy refusing to do so the Local Government Board will direct a sworn investigation into the circumstances with a view to his removal from office by an order under seal.

Dr. McCarthy was accordingly called upon to take up the duties of the dispensary district. The chairman said that the trouble had now reached an interesting stage. After three attempts Dr. McCarthy was appointed but owing to the action of the Irish Medical Association he was intimidated from taking up the position. If he was now dismissed under seal he could never get any position under the Local Government Board of Ireland. It is obvious that the Irish Medical Association, with the eminent members of the medical procession connected with it, has now in its campaign in favour of the Irish union medical officers not alone the guardians to deal with but the Local Government Board as well, headed by the Chief Secretary for Ireland, who is of course its president.

Visit of the King and Queen to Cork.

Their Majesties the King and Queen visited Cork on August 1st and received a most enthusiastic reception. Addresses were presented by the corporate body of the Queen's College, by the Cork branch of the National Association for the Prevention of Consumption, and by the Cork Medical and Surgical Society. The College address having referred to the fact that the College was founded under the auspices of the late Queen Victoria went on to say, "And we confidently anticipate that under your Majesty's gracious favour it will continue to diffuse the light of learning throughout the province for the special benefit of which it has been established." The address from the Cork branch of the National Association for the Prevention of Consumption contained the following paragraph: "We are aware that the association which we represent owes its existence mainly, if not entirely, to the interest which your Majesty has unceasingly displayed in the welfare of your subjects by promoting the scientific and successful treatment of diseases which have been so long accepted as incurable." In the address from the Cork Medical and Surgical Society the following paragraph occurs: "As members of the medical profession we have been deeply interested in your philanthropic efforts to secure the better housing of the poor and to arrest the terrible destruction of human life caused by the ravages of tuberculosis and cancer. It also affords us much pleasure to know that Her Most Gracious Majesty the Queen is equally interested in all movements to eradicate disease and to alleviate suffering and misery." I ventured to prophesy some weeks ago that Their Majesties would receive a very hearty greeting in Cork because it was well known that His Majesty takes a deep personal interest in the people of this country and I am happy to be able to state that my anticipations have been entirely realised. Along the line of the Royal procession bunting was exhibited from nearly every window and handsome festoons stretched across the streets. All was brightness and colour and the cheering of the vast crowds afforded undeniable proof of the popular feeling. When driving through one of the principal streets it was noticed that the Queen directed His Majesty's attention to an inscription on one of the banners—"Welcome King Edward the Peace-Maker." The King smiled and was evidently pleased with the sentiment. Indeed, His Majesty repeatedly showed his high appreciation of the kindly feelings exhibited towards him and never lost an opportunity of expressing his ardent desire to make the people of Ireland happy, prosperous, and contented. The universal opinion entertained in Cork to-day is that King Edward the VII. by his tact, and especially by his kindliness of manner and desire to do good, has done much to secure that "union of hearts" which is so much to be desired in the interests of both countries.

The Belfast Workhouse.

In his half-yearly report Mr. Agnew, the Local Government Board inspector, recommended that a day nurse should be provided for patients in the female lock ward and that some effort should be made to supply an examination-room for gynæcological cases apart by itself. More baths were needed, he said, and the hope was expressed that the guardians might succeed in carrying out their laudable purpose of promoting a scheme for the modern treatment and complete isolation of consumptive patients. Mr. Agnew suggested that a sufficient addition be made to the nursing staff to enable the guardians to dispense entirely with pauper attendants, and he said that the medical, surgical, and nursing staff were zealous and skilled in the performance of their duties and that the patients were treated with every kindness and consideration. The board of guardians had decided to defer its reply to the letter of the Local Government Board inclosing the report.

August 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Institute of Legal Medicine and Mental Diseases.

THE Minister of Public Instruction by a decree dated June 22nd has approved of the resolution of the council of the Paris Faculty of Medicine relative to the creation and organisation in connexion with this faculty of an Institute of Legal Medicine and of Mental Diseases. The object of this institute is to give a theoretical and practical training to medical men and medical students, both French and foreign, who intend to practise as experts before the courts. A medical man or medical student, either French or foreign, who has gone through the course prescribed by the new institute and has passed a trial examination will receive a special diploma. A certificate of diligence will be given to foreign medical men and medical students who do not wish to undergo the trial examination. The new institute will be under the direction of the dean of the faculty of medicine, of the professor of legal medicine, and of the professor of the Clinique of Mental Diseases. The course of training will be divided into two portions: (*a*) a medico-legal training properly so-called and (*b*) a course of training in mental diseases from the medico-legal side. The training in regular medico-legal subjects will be under the direction of the professor of forensic medicine, who will take it in hand as a portion of the work attached to the chair of forensic medicine, together with (1) the *agrégés libres*; (2) the assistant director of the laboratory of toxicology; and (3) the assistance of the heads of the departments of anatomy and histology in connexion with forensic medicine. The course of training will include (*a*) a theoretical part and (*b*) a practical part. The theoretical part includes a complete course in forensic medicine. This course will be undertaken by the *agrégés libres* in connexion with the chair of forensic medicine and by the assistant director of the laboratory of toxicology. The practical part will include (1) the making of post-mortem examinations and the examination of living subjects with special regard to forensic medicine; and (2) microscopical, chemical, and physiological studies in so far as regards forensic medicine. This training will be given by the professor of forensic medicine, the *agrégés libres* in connexion with the chair of forensic medicine, and the heads of the various departments. The training in forensic medicine proper, both practical and theoretical, will be carried on for the whole of the duration of the stage of instruction—that is to say, during two terms of six months each. The medico-legal training in mental diseases will be under the direction of the professor of the Clinique of Mental Diseases who will give it (1) with the assistance of the *agrégés libres* and in connexion with the chair of mental diseases; (2) with the assistance of the medical instruction given by the medical officer of the infirmary attached to the depôt of the Prefecture of Police; and (3) with the assistance of the head of the clinique attached to the chair of mental diseases. The course of training comprises (*a*) a theoretical part and (*b*) a practical part. The theoretical part includes a complete course of instruction in mental diseases and in forensic medicine so far as regards mental diseases. This course of instruction will last during the first six months of the period of training and will be given by the *agrégés libres* in connexion with the chair of the Clinique of Mental Diseases and by the heads of the various departments in this clinic. The practical part will include (1) lessons and clinical demonstrations in mental diseases, which will be undertaken by the professor of the chair during the two periods of six months each during which the instruction lasts; and (2) clinical demonstrations in forensic medicine so far as regards mental diseases, which will be given during the second part of six months by the medical men attached to the special infirmary connected with the Prefecture of Police.

Obituary.

Professor Nocard of the School of Alfort, the eminent bacteriologist, who was one of Pasteur's colleagues at the commencement of the latter's investigations into the nature of serums, has just died at the age of 53 years after a short illness. He was born at Provins on Jan. 29th, 1850, and studied at the Alfort School, of which in 1878 he became *chef de service*. In the following year he was nominated to the chair of animal contagious pathology and sanitary police. In 1889 he was nominated as director of the whole establishment and held this post for many years until he gave it up in order to devote himself entirely to clinical research in the laboratory. He became in succession member of the Central Society of Veterinary Surgeons, of the Committee of Epizoötic Diseases, of the Committee of Hygiene of the Seine, and finally a member of the Academy of Medicine. In 1886 Professor Nocard became numbered among the most eminent bacteriologists owing to the results of the scientific investigation which, at the invitation of Pasteur, he undertook with Roux, Straus, and Thuiller, by the discovery which he then made of the microbe of farcy in the ox and of the bacillus of contagious mammitis in horned animals, especially in milk-giving cows. He also made researches in the nature of glanders (*morve*) and many other acute contagious maladies, especially pneumonia and aphthous fever. It is easy to recall his controversy with Koch, the German bacteriologist, in opposition to whom he, relying on his French experiments, maintained that it was possible to infect bovine animals with tuberculous matter taken from men. These statements refute in great part the theories of Koch as to the propagation of tuberculosis in man by milk or flesh of animals.

August 4th.

Medical News.

UNIVERSITY OF EDINBURGH.—The following degrees and certificate have been conferred:—

Doctor of Medicine.—*Arthur Leonard Anderson, New Zealand, M B, C.M., 1893; Francis Thomas Auden, England, M.B., C M., 1891 (*in absentiâ*); †William John Barclay, B A., New Zealand, M B, Ch.B. (with first-class honours), 1899; ‡James Brunton Blaikie, Scotland, M.B., C.M., 1896; James Blyth, Scotland, M.B., C M., 1893; Douglas John Mayhew Bone, England, M B, C M 1887; Robert Tennant Bruce, Scotland, M.B., C M., 1894; *Archibald Fawns Cameron M.A., Scotland, M.B, C M., 1896; Bertram Joseph Courtney, England, M B, Ch.B., 1899; ‡Leonard Crossley England, M.B., Ch B., 1900; †John M'Ewen Dalziel, Scotland, M B C.M., 1895; ‡Horatius Bonar Dodds, Scotland, M B., Ch.B, 1900; ‡Owen John Evans, Wales, M B. Ch.B., 1901; ‡Hugh Faulkner Ireland, M.B., Ch.B., 1899; ‡Robert Mylcraine Freer, England M B, C M, 1894; Arthur William Fuller, England, M B, Ch B., 1900; ‡James John Galbraith, Scotland, M B., Ch B. (with second class honours), 1899; ‡Andrew Gilmour, Scotland, M B., Ch B, 1893; Thomas Parker Greenwood, B Sc., England, M B, C M, 1897, ‡Alfred Hume Griffith, England, M.B., Ch.B., 1899, Francis Alexander Hardy, England, M B, C.M., 1896; ‡Herbert Harris, England M B., Ch.B, 1900; ‡John Henderson, Ireland M B. C M, 1897; †Thomson Henderson, Scotland, M.B., Ch B, 1900; Albert Lewis Husband, England, M.B. C M (with second-class honours), 1895; William Roy Jackson, M.A Scotland M.B C M 1893, ‡William Ernest Jennings India M B, C.M., 1887; William James Bennett Jones, Wales, M B., Ch B., 1899; Francis Ferguson Kerr, Canada, M.B., C M., 1898; †Leslie Kingsford, New Zealand, M B, C.M. (with second-class honours), 1897, John Dickinson Leigh, England, M B C M., 1886; Patrick Alexander Leighton Scotland, M B., Ch.B., 1898; George Herbert Lewis, Wales, M B, Ch B, 1900; Thomas Hillhouse Livingstone, England, M B., Ch B., 1899, *George Lyon, Scotland, M B, Ch.B. (with first class honours), 1899; ‡Duncan Matheson Mackay, England, M B, C.M., 1895, ‡John William MacKenzie, Scotland, M B., Ch.B., 1898; ‡Arthur Hutton M'Shine, Trinidad, M.B, C M., 1901; ‡Arthur Anderson Martin, New Zealand, M.B, Ch.B. (with second-class honours), 1900 (*in absentiâ*); Frederick Crichton Matthew, M.A, Scotland, M B, Ch B, 1900; ‡William Walker Maxwell, England, M B Ch B, 1898; ‡Frederick Norton Menzies Wales M.B. Ch.B 1899, Philip Ernest Millard, England, M B, Ch B., 1898; *James Miller, B Sc., Scotland, M.B, Ch.B. (with second class honours), 1899, James Ramsay Munro, England, M.B., Ch B., 1899; John Nightingale, England, M B, C M, 1888; Alexander Spalding Mackie Peebles, Scotland, M B., Ch B., 1899; *Howard George Peel, England, M B., Ch.B, 1901; Reginald Ogilvy Petrie, M A., Scotland, M B, C M., 1892; Ernest Edward Porritt, New Zealand, M B, C M, 1896 (*in absentiâ*); Sydney Clifford Pritchard England, M B, Ch B., 1899; Alexander Mair Rattray Scotland M B, C M. 1897; ‡Matthew Burrow Ray, England, M.B C M, 189 ; †James Martin Reid, Scotland, M B, Ch B, 1899; Hugh Richardson, Scotland, M.B, C M., 1895; Griffith Lloyd Roberts, Wales, M B C M, 1895; John Alexander Robertson, Scotland, M B, C M 1890 (*in absentiâ*); Lauchlan Rose, M A, Scotland, M B, C M, 1894; ‡Laura Stewart Sandeman, Scotland M B Ch B, 1900; Kenneth MacKenzie Scott, England, M B, C M, 1887, Thomas Redpath Scott Sibbald, Scotland, M B, C M., 1894; †Frederick David Simpson, Scotland M B, Ch B., 1900; ‡George Smith Small, Scotland M B, C M, 1896; Henry Langlands Spark Scotland, M.B., Ch.B, 1901; ‡Walter Henry Swaffield, England, M B, C M, 1901; ‡Harry Moss Traquair, Scotland, M B, C.M. (with first-class honours), 1901; Edward James Tyrell,‡ Scotland, M B Ch B, 1901; Ernest Edwin Waters, England, M B. C M 1893 (*in absentiâ*); ‡John William Wells, England, M B, C M, 1887; Arthur Edward White, England, M.B., C M. 1896, ‡Richard Berry Auglin Whitelocke, Jamaica, M B., C.M. (with second-class honours), 1834; Lewis Arthur Williams, England, M.B., C.M., 1895 and Hector Douglas Wilson, Australia, M.B., Ch.B., 1899.

* Awarded gold medals for their theses.
† Highly commended for their theses.
‡ Commended for their theses.

[illegible] alfour,
[illegible] Allison,
[illegible] kwood
[illegible] aland ;
[illegible] chrane
[illegible] George
[illegible] tland ;
[illegible] homas
[illegible] Clark,
[illegible] harles
[illegible] tland ;
[illegible] rooks,
[illegible] rwen,
[illegible] enson
[illegible] illiam
[illegible] gland,
[illegible] obbin,
[illegible] Edgar
[illegible] John
[illegible] John
[illegible] tland ;
[illegible] tland ;
[illegible] gland ;
[illegible] LL.B.,
[illegible] Mabel
[illegible] ndrew
[illegible] arper,
[illegible] erson,
[illegible] Albert
[illegible] laud ;
[illegible] Isaac
[illegible] ierson
[illegible] land ;
[illegible] Ivan
[illegible] son Kirkness, Scotland ;
[illegible] Walter Scott Laidlaw,
[illegible] inton, M.A., Scotland ;
[illegible] ancis William Lundie,
[illegible] John Robertson
[illegible] Scotland ; Marion
[illegible] Laren, Scotland ;
[illegible] Millan, Scotland ;
[illegible] pherson Macrae,
[illegible] England ; Henry
Cooke Martin, Ireland ; Alfred Sutton Millard, B.Sc., England,
[illegible] otland ; Charles Robert Pater-
[illegible] Maurice Moll, Orange River
[illegible] M.A., Trinidad ; Ernest Muir, Scotland ; Charles Herold Muller, Cape Colony ; ‖Hugh Lennox Munro, Scotland ; ‖David M'Kenzie Newton, Scotland ; William Harwood Nutt, England ; Claude O'Flaherty, Ireland ; David Edward Stanford Park, England ; ‖David Duncan Paton, M.A., Scotland ; ‖Thomas Peebles, Scotland ; John Alexander Pottinger, Scotland ; Julia Letitia Pringle, Scotland ; Walter Llewellyn Prichard, England ; Arthur Meurig Pryce, Wales ; William Readman, England ; Eva Anne Robertson, Scotland ; William Sibbald Robertson, Scotland ; Amy Robinson, England ; Leslie Charles Robinson, [illegible]
Scotland ; Mabel Ross [illegible]
Cape Colony ; Norm [illegible]
Sanderson, Scotland ; [illegible]
Gordon Addison Sco [illegible]
England ; Maurice Sk [illegible]
England ; §Grahame Howie Skinner, Scotland ; John Henderson Smith, B.A., Scotland ; ‖Sydney Watson Smith, Scotland ; ‖Eva Maud Snowball, England ; Henry Speirs, Scotland ; Francis Henry Stirling, Scotland ; Amelia Sutcliffe, England ; §John Tait, B.Sc., Scotland ; James Ewen Taylor, Scotland ; Johannes Petrus du Toit, Cape Colony ; Louis Turiansky, Scotland ; Robert Veitch, Scotland ; William Richard Spencer Watkins, Wales ; George Jacobus Wentzel, Cape Colony ; David Herman Wessels, South Africa ; Leonard West, England ; George Wight, Scotland ; William Young Woodburn, Australia ; William Dundas Wright, England ; and Gerald William Young, England.

§ Passed with first-class honours.
‖ Passed with second-class honours.

[illegible] opical Climates.—
[illegible] xter, M.B., Ch.B.
[illegible] ; Edith Cochrane
[illegible] Ch.B. ; Henry Caird, M.B., Ch.B. ; Katharine Jane Stark Clark, M.B., Ch.B. ; Crawford Smith Crichton, M.B., Ch.B. ; David M'Kenzie Crooks, M.B., Ch.B. ; James Davidson, M.B., Ch.B. ; Frank Inglis Dawson, M.B., Ch.B. ; William Elliot Carnegie Dickson, B.Sc., M.B., Ch.B. ; Horatius Bonar Dodds, M.D., Ch.B. ; Alexander Leonard Duke, M.B., C.M. ; Clement Edgar Dumanoire, M.B., Ch.B. ; John Fortune, M.B., Ch.B. ; Agnes Josephine Gardner, M.B., Ch.B. ; Reginald Glegg Gordon, M.B., Ch.B. ; Philip Gray-Marshall, L.R.C.P. & S. (in absentiâ) ; Frances Margaret Harper, M.B., Ch.B. ; Alexander William Montgomery Harvey, M.B., Ch.B. ; John Macpherson Johnson, M.B., Ch.B. ; James Mathieson Kirkness, M.B., Ch.B. ; Alexander Lundie, B.Sc., [illegible] Ch.B. ;
[illegible] M.B.,
[illegible] M.B.,
[illegible] h.B. ;
[illegible] M.B.,
[illegible] M.B.,
[illegible] and
[illegible] Veitch, M.B., Ch.B.

UNIVERSITY OF BRUSSELS.—The following is a list of English candidates who were successful at the June examination for the degree of Doctor in Medicine :—

Edward Cullinan, [illegible] Hospital ; Richenda Gillett [illegible] rnest C. Lambert, M.R.C [illegible] ; James C. McWalter, M.A., L.R.C.S.I., F.F.P.S. Glasg., D.P.H., Catholic University, Dublin ; Cecil E. J. Philippson, F.R.C.S., Cape Town ; and *George Sowden, M.R.C.S., L.R.C.P. Lond., D.P.H. Cantab., London Hospital.

* Passed with honours.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Ludwig Blumreich has been recognised as *privat-docent* of Gynæcology, Dr. Richard Cassirer as *privat-docent* of Nervous Diseases, and Dr. Wilhelm Stoeltzner as *privat-docent* of Children's Diseases.—*Budapest:* Dr. F. Reuss has been appointed Lecturer on the Biology of the Nervous System.—*Erlangen:* The chair of Medicine recently held by Professor Penzoldt has been filled by the appointment of Professor Fritz; in consequence of Professor von Strümpell's removal to Breslau Professor Ernst Graser has been appointed Director of the University Hospital.—*Halle:* The chair of Psychiatry having been declined by Dr. O. Binswanger has now been offered to Professor Ziehen of Utrecht.—*Heidelberg:* Dr. Otto Cohnheim, *privat-docent* of Physiology, a son of the late Professor Cohnheim, has been promoted to an Extraordinary Professorship.—*Leipsic:* Dr. F. Rolly has been recognised as *privat-docent* of Internal Medicine. Dr. Risel has been appointed Prosector to the Pathological Institute in succession to the late Professor Saxer.—*Prague (German University):* Dr. Josef Langer has been recognised as *privat-docent* of Children's Diseases.—*St. Louis:* Dr. Hugo Ehrenfest, who has been operator in the Vienna Gynæcological Clinic under Professor Schauta, has been appointed Instructor in Obstetrics.—*Strasburg:* Dr. Ulrich Rose has been recognised as *privat-docent* of Medicine.—*Vienna:* Dr. Stefan Weidenfeld has been recognised as *privat-docent* of Dermatology and Syphilis; Professor Albert Neisser of Breslau has been selected for the offer of the chair of Dermatology, which is being vacated by the retirement of Professor Isidor Neumann.—*Wurzburg:* Dr. A. Schmincke has been appointed Prosector to the Institute of Comparative Anatomy.

QUEEN CHARLOTTE'S HOSPITAL.—Viscount Portman, the President of Queen Charlotte's Hospital, took the chair on July 23rd, at a meeting held at his house, 22, Portman-square, on behalf of this hospital. In consequence of the great increase in the work of the charity it has been decided to enlarge the Nurses' Home at a cost of £2000. Lord Hardwicke, the chairman of the committee of management, wrote regretting his inability to be present and stating that the in-patients had increased from 692 in 1882 to 972 in 1892, and 1271 in 1902, while during the first six months of the present year the number was 722. The Bishop of Kensington moved—

> That this meeting of governors and friends of Queen Charlotte's Hospital desires to express its continued interest in the charity and having regard to its great and growing work to commend to public support the efforts now being made by the committee to provide the further increased accommodation necessary for patients and nurses, and to obtain the additional funds needed for maintenance.

The motion was seconded by Lieutenant-General Lowry and carried.—Mr. H. A. Harben moved :—

[illegible]

Dr. W. Rivers Pollock, in seconding the motion, stated that Queen Charlotte's Hospital was the largest lying-in hospital in Great Britain and that it offered exceptional facilities to medical students and qualified practitioners in obtaining a knowledge of practical midwifery and of the treatment of very young infants. The motion was carried and a vote of thanks to Lord Portman for kindly lending his house for the meeting and for presiding brought the proceedings to a close.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—On July 21st Dr. R. Roxburgh, president of the Weston-super-Mare Philharmonic Society, was presented with a silver-mounted writer's companion, together with an illuminated address expressing the respect and esteem of the members for one who has for many years occupied the presidential chair of the society.—On July 15th Dr. J. H. Stowers was presented by his colleagues at the North-West London Hospital with a silver salver, the inscription on which explained that it was given "as a token of friendship and in recognition of 17 years' service as honorary secretary to the medical committee."—On July 29th Dr. C. A. Hayman was presented with a silver cigar case in recognition of his work in connexion with the Bristol Corps of the St. John Ambulance Brigade. Mrs. Hayman was also presented with a silver jewel-box.

Kingsbridge Cottage Hospital.—The annual meeting of the subscribers of the Kingsbridge (Devon) Cottage Hospital was held on July 22nd. During the past year the new wing of the building, which has been erected by Mrs. Berks, was opened. It contains a male ward and female ward, each for three beds, and an operation-room. During the past 12 months 39 in-patients were admitted. There was a favourable balance of £13 remaining, which may not seem a great sum, but it is always pleasant to chronicle a surplus, however modest.

Müller's Orphan Houses. — The report of Müller's Orphanage at Bristol has just been issued and shows that the institution has now entered on its seventieth year of existence. During 1902 the sum of £37,013 was received for the orphans and £4778 for other work in connexion with the institution. Five years have now passed since George Müller died and there has been no sort of organised or direct appeal to the public or any individual for subscriptions, and yet every agency has been efficiently maintained. The report alluded to the resignation of Dr. Eubulus Williams, who has been physician to the orphanage for the past 34 years, and adds that Dr. C. O. Bodman has been appointed to the post thus rendered vacant.

University of Durham College of Medicine, Newcastle-upon-Tyne.—During the last 12 months there has been a slight decrease in the number of specimens examined in the Bacteriological Diagnosis Department of the University of Durham College of Medicine, Newcastle-upon-Tyne. Some of these examinations have been made for medical practitioners, others by special arrangements for the county councils of Northumberland and Durham, the Guisborough combined district councils of the North Riding of Yorkshire, the town councils of Sunderland and West Hartlepool, the Newcastle Royal Infirmary, and other public institutions. The total number of specimens examined in the laboratory during the year ending May 31st, 1903, amounts to 938, as compared with 1009 during the preceding 12 months. The different kinds of examinations carried out were as follows: 513 samples of sputum from suspected cases of phthisis were examined for tubercle bacilli, which were found in 218 cases; 101 specimens of blood were examined from suspected cases of enteric fever by Widal's method, a positive result being obtained in 44 cases; 205 swabs from suspected cases of diphtheria were examined for the bacilli, which were found in 66 specimens; ten specimens of pus were examined, the pneumococcus being found in two, streptococcus pyogenes in three, staphylococcus pyogenes aureus in four, and the gonococcus in one; tubercle bacilli were found in one specimen of urine and in one of fæces; eight specimens of anthrax were examined, positive results being obtained in four; and 50 samples of water were examined quantitatively for bacteria.

Parliamentary Intelligence.

HOUSE OF COMMONS.

Thursday, July 30th.

Cholera at Quetta.

Mr. Schwann asked the Secretary of State for India whether any report had been received from the chief medical officer at Quetta or through the political department at Simla regarding the outbreak of typhus fever amongst the workmen on the Nushki-Seistan railway route and of cases of cholera at Quetta, and whether a report could be presented showing what progress had been made with the earthwork on that desert route, and describing the sanitary conditions and the question as to water-supply that were likely to affect the construction of the line and the future facilities for traffic such as the Nushki-Seistan railway was intended to offer.—Lord George Hamilton: A railway is being constructed from Quetta to Nushki but no proposal for its extension from Nushki towards Seistan has been made or sanctioned. I have no information as to the prevalence of epidemics among the workers on the Quetta-Nushki Railway but I have heard that there is an epidemic of typhus fever at Quetta and in other parts of Baluchistan. Cholera is also reported near Quetta and at Nushki.

Ambulances in Hyde Park.

Mr. Claude Hay asked the hon. Member for West Derbyshire, as representing the First Commissioner of Works, whether the St. John ambulances in Hyde Park have been decided upon as being as satisfactory as the Metropolitan Police ambulances in Hyde Park, and whether he would state the result of the promised inquiry as to the number and positions of ambulances which were placed in Hyde Park, having regard to recent accidents to horsemen and others.—Mr. Victor Cavendish: The St. John ambulances in Hyde Park have been inspected by Sir William Bennett who reports that they are not quite so satisfactory as the Metropolitan Police ambulances, but owing to their lightness and simplicity they are best suited for the purposes of work in Hyde Park. There are now ambulances at Alexandra Gate, Hyde Park Corner, the Marble Arch, and at the police station.

Medical Officers in Ireland.

Mr. Patrick O'Brien asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the Ballinasloe board of guardians had failed to procure a medical officer for the Killan dispensary district at the salary of £120 per annum; whether he could say if any medical men had stated to that board in writing at what salary they would be willing to accept office, and, if so, at what amount; and whether he could say how many vacancies existed at present in the Irish dispensary service and for what period each district had been vacant, what fees were being paid per week to the temporary medical officers in charge of these districts, how much per week was paid in advertising the vacancies in each union, and how much of the total cost of locum-tenents' fees and advertisements was refunded by the Treasury to the guardians in each case.—Mr. Wyndham: The vacancy in Ballinasloe union was created on [illegible] remaining six are of very recent creation. Temporary medical officers are usually paid £4 4s. a week. The cost of advertisements is not officially known. Recoupment is made in respect only of approved salary.

Haffkine's Plague Prophylactic.

Mr. Weir asked the Secretary of State for the Colonies whether he would state on what date the system of inoculation with Haffkine's plague prophylactic was brought into operation in Hong-Kong, the number of persons inoculated, and how many have since succumbed to plague.—Mr. Chamberlain: I have no information on the point but will ask the Governor for a report.

Monday, August 3rd.

Medical Reports.

Mr. D. A. Thomas asked the President of the Local Government Board when the sixty-f[illegible]rths, deaths, and marriages (England)) of [illegible] 1901, presented on August 4th, 1902, and whe[illegible] thirty-first annual report of the Local Government Board, 1901–02, containing the report of the medical officer for 1901–02, presented Nov. 3rd, 1902, would be delivered; whether he could say what had been the cause of the delay in the publication of these reports; and whether he would take steps to alter the practice of presenting command papers in dummy in one session when not ready and not delivering them until the next in view of the inconvenience involved.—Mr. Long replied: As regards the annual report of the Registrar-General, I am informed that it will be issued with very little further delay. The Registrar-General states that the report has been delayed exceptionally this year on account of the heavy pressure in his office due to the preparation of the Census returns and also to an important change which it has been found necessary to make in the tabulation of deaths. The report of the medical officer of the Local Government Board, to which the honourable Member refers, has gone to press and will, I understand, probably be issued within a month. The issue of the report this year has been delayed through the amount of special work which has been thrown on the medical branch in connexion with the recent small-pox epidemic. I am desirous that reports which are presented in dummy should be issued as soon as possible afterwards; but, as the honourable Member will see, the delay in the present cases was due to exceptional circumstances.

The Army Medical Service.

On the vote of £530,000 to defray the charges for the Army Medical Service Mr. Burdett-Coutts initiated an interesting debate. He gave Mr. Brodrick credit for much energy in reform and several important results, but he contended with emphasis that "the only way to escape from the fatal cycle of medical disaster and attempted reform which had marked the last 60 years was a thoroughly organised system of civilian aid."—Mr. Brodrick said that he fully recognised the services which Mr. Burdett-Coutts originally rendered in bringing forward the question of army medical reform. In the changes that had been made everything had been done to see that the arrangements did not become stereotyped, and in order to avoid that he had enlisted the leading members of the medical profession who were in closest touch with the medical developments of the day. He had been peculiarly fortunate in this respect. He invited the assistance of some of the most eminent members of the profession and he could not express too highly his gratitude to those gentlemen who had given up high fees and personal practice to sit with him on a committee and had also offered themselves as willing to act on the Advisory Board at a merely nominal honorarium. In order that the Army Medical Department might be adequately reorganised, besides the army members, the Advisory Board consisted of eminent civilian physicians and surgeons who attended three or four committee meetings weekly. The War Office had endeavoured to meet their views in regard to pay, the increase of numbers, and the increase of leave for study in the military college, for which a site had been secured. Previously to the appointment of the Advisory Board the number of candidates was not equal to half the vacancies, but since then the numbers had increased and at the last examination there were [illegible] candidates for 30 vacancies, some of the candidates having occupied positions in the best hospitals. The Advisory Committee had reviewed the whole of the military hospitals in the country and he hoped that they were on the eve of very great changes in not treating so many trifling cases, having a much better equipment, more scientific structures, and a general modernising of the institutions. He had asked Parliament to vote £150,000 which he proposed to intrust to a small committee, of which Sir E. O. Perry would be chairman, and that committee would apportion the money among the various military hospitals with a view to secure their modernisation. Another point was the organisation of an adequate civilian reserve and the definition of its status as compared with the Army Medical Corps itself. He hoped next session to be able to state that these were accomplished facts.

Appointments.

[illegible] ublic Institutions, [illegible] this column, are [illegible] rected to the Sub- [illegible] morning of each [illegible]

Barber, G. W., M.R.C.S., L.R.C.P. Lond., has been appointed, *pro tem.*, Acting Resident Physician to the Kalgoorlie Hospital, West Australia, and also Acting District Medical Officer, *pro tem.*, of Kalgoorlie.

Belgrave, T. B., M.R.C.S., M.D. Syd., has been appointed Visiting Justice to the Gaols in East Kimberley, West Australia.

Birkbeck, Lawrence Henry Carr, M.B., B.S.Oxon., has been appointed Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, for Bridgwater, Chard, Langport, Wellington, and Williton.

Black, Victor, M.B., Ch.M. Edin., has been appointed Officer of Health, *pro tem.*, of Perth, West Australia.

Boycott, A. E., M.A., M.B., B.Sc. Oxon., Fellow of Brasenose College, has been appointed Gordon Lecturer in Experimental Pathology at Guy's Hospital Medical School.

Bruce, R. T., M B, M.S. Edin., has been appointed Certifying Surgeon under the Factory Act for the Thames District of the County of Oxford.

Campbell, Peter, M.B. Edin., has been appointed Certifying Surgeon under the Factory Act for the Newport District of the County of Fife.

Cuff, Archibald, B.A., M.B., B.C. Cantab., F.R.C S. Eng., has been appointed Surgeon to the Royal Infirmary, Sheffield.

Dawes, R. St. M., L.R.C.P. Lond., M.R.C.S., has been appointed Health Officer of Gawler South, South Australia.

Elliott, Charles Bolton, L. & L Mid. R.C.P. Edin., M.R.C.S., has been appointed Medical Officer of Health of Geraldton, West Australia.

Harratt, T. T., M.R.C.S., L.R.C.P. [illegible] ointed [illegible] rict of [illegible]

Hop [illegible] Medical [illegible]

Howard, T., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory Act for the Portland District of the County of Dorset.

Kelly, T. Gordon, B.A., M.D., D.P.H., has been re-appointed Medical Officer of Health of the Market Bosworth Rural District.

Lemarchand, Arthur Wharton, M R C.S., L R C.P. Lond., has been appointed Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, for Barnstaple, B[illegible]eford, South Molton, and [illegible]

[illegible] has been appointed [illegible] Henrietta-street, W.C.

[illegible] been appointed Assistant [illegible] London.

[illegible] been appointed Honorary [illegible] rth Public Hospital, West Australia.

Roberts, R. L., has been appointed Certifying Surgeon under the Factory Act for the Ruabon District of the County of Denbigh.

Simpson, Lilian G., M.D. Brux., L.R.C.P. & S. Edin., has been appointed Assistant Medical Officer to the Camberwell Infirmary, Camberwell, S.E.

Stirling, Edward Charles, C.M.G., F.R.S., M.D. Cantab., has been appointed Honorary Consulting Surgeon to the Adelaide Hospital, South Australia.

Walker, J. W. Thomson, M.B., C.M. Edin., F.R.C.S. Eng., has been appointed Assistant Surgeon to St. Peter's Hospital, Henrietta-street, W.C.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Cancer Hospital (Free) Fulham road, S.W.—House Surgeon for six months, renewable. Salary £70 per annum, with board and residence.

[illegible] Assistant Medical [illegible] with board, apart- [illegible]

[illegible] Salary £80 per [illegible]

[illegible] lsea.—Studentship [illegible]

[illegible] Hospital.—House Physician, unmarried. Salary £90 a year, with board and lodging.

Leeds General Infirmary.—Resident Ophthalmic Officer. Salary £50 a year, with board and lodging.

Liverpool Dispensaries.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

Liverpool Royal Southern Hospital.—Junior House Surgeon. Salary 60 guineas per annum.

[illegible] on. Salary [illegible]

[illegible] le Resident [illegible] laundry.

[illegible] geon.

[illegible] —Assistant [illegible] apartments, [illegible]

[illegible] House Surgeons. Salary at rate of £50 per annum, with board, lodging, and washing.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent-garden, W.C.—House Surgeon for six months. Salary at rate of £100 a year, with board, lodging, and washing.

Salford Union Infirmary, Hope, near Eccles.—Male Assistant Resident Medical Officer. Salary £130 per annum, with apartments and attendance.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—Pathologist.

Shrewsbury, Salop Infirmary.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

Stockport Infirmary.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

Stoke-upon-Trent, North Staffordshire Infirmary and Eye Hospital, Hartshill.—Assistant House Surgeon for six months. Honorarium £25, with board, apartments, and washing.

Sussex County Hospital.—Second House Surgeon and Anæsthetist, unmarried. Salary £70 per annum, with board, washing, and [illegible]

[illegible] ictoria Central Hospital, Liscard.—[illegible] Salary £100, with apartments, board, [illegible]

[illegible] ounty Asylum, Winwick.—Assistant [illegible] Salary £150 per annum, with apart- [illegible] nd washing.

West African Medical Staff, Colonial Office, S.W.—Seven Medical Officers. Salary £400 to £500 a year, with quarters, &c.

Births, Marriages, and Deaths.

BIRTHS.

[illegible] e wife of Octavius [illegible]

[illegible] ngton, the wife of [illegible]

[illegible] Hyde-park, W., the wife of Reginald Hartley, M.D. Durh., F.R.C.S. Edin., of a daughter.

Pilcher.—On July 30th, at Boston, Lincolnshire, the wife of Cecil Westland Pilcher, M.R.C S., L.R.C P. Lond, of a son.

Turner.—On July 30th, at Grafton House, Buxton, to Mr. and Mrs. Turner, a daughter.

MARRIAGES.

Baker—Hindley.—On July 30th, at the Church of St. [illegible] ary, Plaistow, Kent, Arthur Ernest Baker, M.R.C.S., of 44, Brook-street, London, W., to Agnes Flora, youngest daughter of the late Charles H. [illegible]

[illegible] J.P., Crichton House, Dumfries.

[illegible] George's, Hanover- [illegible] Morrison, M.D., of [illegible] Frances, youngest [illegible] of Southsea.

DEATHS.

[illegible] e six, the [illegible] C.P. [illegible] enderson, [illegible] Maritime [illegible]

[illegible] Matthias [illegible] hire, late [illegible]

Swayne.—On August 1st, at Pembroke-road, Clifton, Bristol, suddenly, Joseph Griffiths Swayne, M.D. Lond., M.R.C.S., L.S.A., in his 84th year.

Walker.—On the 17th inst., suddenly, Hunter Urquhart Walker, L.M., L.R.C P., L R.C S. Edin, of 1, Pembury-road, Clapton, son of the late Rev. Alexander Walker, for many years Senior Chaplain of the Scottish Church, Madras Presidency, and lately Minister of Rescobie, Forfarshire.

Weaver.—On the 1st inst., at Westbrook, Southport, James Weaver, M.D., aged 71 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A LAY VIEW OF THE MEDICAL PROFESSION.

To the Editors of THE LANCET.

SIRS,—The following cutting from the *Globe* I think illustrates the attitude adopted by a large number of people in this country:—

> A better illustration of truly paternal legislation could hardly be found than in the attempt of the German Federal Council to prohibit the sale of certain well-known patent medicines in Germany. Apparently a man may not now even drug himself to his liking in that most official land, and if some unauthorised person discovers a really valuable remedy of which the doctors cannot ascertain the ingredients, and therefore violently disapprove, no German can obtain the benefit of it. Our own system has its defects, but it is at least a very long way superior to this.

The paragraph shows not only an utter want of appreciation of the damage to person and pocket that patent medicines may do, but a forgetfulness bred of inexcusable ignorance of the fact that the "man in the street" cannot possibly be a judge of what drugs he should give himself, and that laws such as the one referred to protect those who are unable to protect themselves. The words "therefore violently disapprove" show that the writer of this paragraph has an utterly perverted idea of the attitude of the medical profession upon self-drugging and quack medicines.

I am, Sirs, yours faithfully,
August 1st, 1903. A. W. F. (M.D.)

⁂ We assume that our correspondent, with whose views we agree in the main, is advocating similar legislation in this country. But as long as any person, however ignorant, is allowed to prescribe for his fellows it is hopeless to expect any Government to try to protect foolish people against themselves. The view of the writer in the *Globe* is not that taken by the better instructed portion of the laity.—ED. L.

"A DANGEROUS PAMPHLET."

To the Editors of THE LANCET.

SIRS,—In consequence of the article which appeared in THE LANCET of August 1st, we have discontinued to supply the pamphlet complained of except to medical men. Copies have been given to the public on their request, mostly to readers of the *Scotsman*, in consequence of a letter appearing in it on July 13th last and also one on August 19th, 1902. Not more than 70 or 80 have been sent out in this way and in all cases they have been applied for. We have never circulated this pamphlet broadcast but have sent out one with each pipe; we have supplied these pipes to medical men and to their order since 1878, with the exception of about a dozen, and these were sold on the recommendation of those who had themselves used them—in some cases foreigners—at intervals. We are sorry indeed to find that our action is so strongly disapproved—we hope under a misapprehension of the facts. The members of the medical profession have hitherto been our best friends and we most sincerely hope will continue to be so.

We are, Sirs, yours faithfully,
GAMBLE AND CO.
Edwardes-terrace, Kensington-road, W., August 2nd, 1903.

ST. FRANCIS HOSPITAL FOR INFANTS.

To the Editors of THE LANCET.

SIRS,—I have received a circular letter from Mellin's Food, Limited, in which the St. Francis Hospital for Infants is referred to. Reference is also made to statements occurring in the speeches of Dr. Henry Ashby and myself on the occasion of the opening of the hospital. The general tenour of this document may lead some members of the profession to think that the hospital is in some way connected with the use of the preparation known as Mellin's Food. I therefore desire to prevent any misconception on this matter. It has never been used in the hospital.

I am, Sirs, yours faithfully,
Harley-street, W., July 31st, 1903. RALPH H. VINCENT.

A STORY OF THE EARLY PART OF THE NINETEENTH CENTURY.

To the Editors of THE LANCET.

SIRS,—I was much interested in the letter of a lay correspondent published in THE LANCET of July 25th, p. 278, which gave a short description of the mode of practice of the so-called "Whitworth Doctor" of Oldfield Lane. His description is fairly true, but not all of it. One brother, F. S. Taylor, died at the residence of his son in Sheffield in October, 1866, in my presence (where I was an assistant), nearly 90 years of age. He left seven sons, five of whom qualified in medicine, and all did well. Two followed the bone-setting business, but neither of them with the success of their progenitors. It was not in the Epsom salts and antimonial purgations that their success lay, but in the celebrated black plaster and red bottle. This was compounded of ingredients purchased separately at different druggists in Leeds and London and mixed by themselves at midnight, and if it had no other merit it never disagreed with any skin and was never followed by any pustulation. I saw much of bone-setting so-called and treatment of injuries to joints that would be of great value to many country surgeons, and so much did I interest myself in the craft that I was offered to be initiated into the secret if I would take the pledge of secrecy. This I declined to do and I fancy the secret died with the death of my preceptor, which took place somewhere about 1880.

I am, Sirs, yours faithfully,
August 3rd, 1903. F. A. D. GODFREY, L.R.C.P., L.R.C.S. Edin.

A NEW LIGHT AND COLOUR BATH.

To the Editors of THE LANCET.

SIRS,—I am desirous of bringing before the notice of the profession a new light bath made to my order by the Sanitas Electrical Company, Soho-square. It is a reclining one, fitted with both the arc and the incandescent light. The lamps of the latter are of three colours—red, blue, and ordinary white; either series of colours can be switched on separately. A more extended use of the electric light bath has confirmed me in my opinion on the following points: 1. The therapeutic action of the incandescent lamps is chiefly sudatory. 2. Blue rays act well in many neurotic cases, chiefly by suggestion. 3. The arc light (and heat therefrom) is a successful curative agent in rheumatism, gout, myalgias, psoriasis, catarrh, &c. In acute laryngitis I have seen very good results. 4. As a general tonic the light bath is superior in every way to the Turkish bath.

I am, Sirs, yours faithfully,
J. STENSON HOOKER, M.D. Durh.
Gloucester-place, W., July 27th, 1903.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Can any reader of THE LANCET kindly recommend a home for a man with hemiplegia and delusions? He can pay from £1 to £1 10*s*. a week.

I am, Sirs, yours faithfully,
36, Albert-street, Rugby, July 17th, 1903. M.R.C.S.

ERRATUM.—Mr. S. R. Scott writes:—With reference to my article on a Modification of Roughton's Splint for Pott's Fracture, in THE LANCET of August 1st, p. 323, may I point out a small error. In line 16 of the article, which reads thus: "being to avoid an extended or inverted position of the foot," "inverted" should read *everted*.

◆

V. E.—From the information before us we consider that the assistant is entitled to the fees in so far as regards patients notified by himself. The matter, though a small one, should form the subject of future arrangement between the head surgeon and the assistant surgeon

C. M. W.—We do not know of any such institution for nurses solely, but as regards hospital nurses some hospitals have convalescent homes attached to them to which the nurses can go in case of need.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 6th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 a.m.
July 31	29 88	N.W.	...	77	66	55	54	59	Overcast
Aug. 1	30·05	S.W.	0·02	116	71	56	59	61	Cloudy
" 2	29 91	S.W.	0 30	120	69	56	57	59	Cloudy
" 3	29 59	W.	...	127	72	57	62	64	Cloudy
" 4	29 89	S.W.	...	95	70	56	59	62	Cloudy
" 5	30 01	W.	...	103	69	56	58	62	Cloudy
" 6	30·19	W.	...	120	68	53	55	61	Fine

During the week marked copies of the following newspapers have been received: *Surrey Comet, Reading Mercury, Aberdeen Free Press (Weekly), Literary Digest (New York), Scientific American, Sheffield Daily Independent, Aldershot News, Army and Navy Gazette, Daily Mail, Yorkshire Post, Dublin Express, Hertfordshire Mercury, Sanitary Record, Daily Graphic, Oxford Chronicle, Liverpool Courier, Plymouth Mercury, City Press, Daily Chronicle, Southport Visitor, Engineer, Cromer and North Walsham Post, Echo, Star, Westminster Gazette, Daily Telegraph, Eastern Morning Gazette, &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.). Throat Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9 30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's

London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St.

Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9 30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (15th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (10th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 30 P.M. Dr. Davis: Medical Cases. (Medical wards.)

TUESDAY (11th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Saunders: Heart Disease in Children.

WEDNESDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Armour: Suppurative Diseases of the Central Nervous System.

THURSDAY (13th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—4 P.M Mr. Edwards: Surgical Cases. (Surgical wards.)

FRIDAY (14th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Ball: Discharge from the Ear: Causes and Treatment.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them! Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are :—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

A.—Rev. J. W. Atkinson, Lond.; American Congress on Tuberculosis, Secretary of, New York; Association for the Oral Instruction of the Deaf and Dumb, Lond.; Mr. R. Auerbach, Wiesbaden; Dr. D. W. Aitken, Lond.; Messrs. Arnold and Sons, Lond.; Messrs. Allen and Hanburys, Lond.; A. W. F.

B.—Mr. C. Birchall, Liverpool; Mr. R. R. P. S. Bowker, Lond.; Mr. Jogendrachander Bose, Calcutta; Captain R. J. Blackham, R.A.M.C., Sheringham; Mr. A. A. Bradburne, Lond.; Dr. H. E. J. Biss, Eastbourne; Dr. F. Bushnell, Plymouth; Dr. Marcus M. Bowlan, Lond.; Mr. C. L. Bedford, Lond.; Dr. R. Browne, Goudhurst; Mr. J. W. Benson, Lond.

C.—Dr. T. S. Clouston, Edinburgh; Mr. R. H. Crombie, Banchory; Chemical Discoveries, Ltd., Secretary of, Lond.; Messrs. T. Christy and Co., Lond.; County Asylum, Whittingham, Medical Superintendent of; Central Public House Trust Association, Lond., President of; Mr. J. L. Callaghan, Coventry; Mr. D. Cooper, Huntingdon; Dr. E. Curtin, Bournemouth.

D.—Dr. L. S. Dudgeon, Lond.; Mr. Frederick Deane, Barbados; Mr. W. Duncan, Pittsburg, U.S.A.; Dental Manufacturing Co., Lond.; Mr. F. Davidson, Lond.; Messrs. Down Bros., Lond.; Dr. H. Dreser, Elberfeld; Mr. T. Dixon, Lond.; Mr. T. Donnelly, Dublin; Messrs. G. L. Daube and Co., Frankfort.

E.—Messrs. Evans, Sons, Lescher and Webb, Lond.; Mr. H. Ellis, Winwick; Electrical Standardising Co., Lond.; E. J. P.

F.—Mr. H. Frowde, Lond.; Messrs. Festersen and Co., Basle.

G.—Dr. A. W. Gilchrist, La Bourboule, France; Messrs. R. W. Greeff and Co., Lond.; Messrs. Goulden and Co., Canterbury; Galen Manufacturing Co., Lond.; Messrs. Gamble and Co., Lond.; Dr. T. G. Garry, Florence; G. S.

H.—Mr. H. T. Hick, Lond.; Mr. R. W. Hill, Colombo; Dr. D. Hethcote, Barnard Castle; Mr. F. Harrison, Sheffield; Hospital for Sick Children, Newcastle-on-Tyne, Secretary of; Hull Corporation, Town Clerk of; Dr. C. Holman, Lond.

I.—Institut de Bibliographie, Paris, Secretary of; Messrs. Idris and Co., Lond.

J.—Dr. O. C. Jones, Silverton; Jeyes Sanitary Compounds Co., Lond.; J. P. T.; J. W. R.

K.—Kent and Canterbury Hospital, Secretary of; Messrs. Krohne and Sesemann, Lond.; Kidderminster Medical Society, Hon. Secretary of; Messrs. R. A. Knight and Co., Lond.; Dr. Wilfred Kingdon, Seaton.

L.—L. E.; London Anti-Vivisection Society, Secretary of; Leeds General Infirmary, Manager of.

M.—Mr. J. Murray, Lond.; Mr. R. Mosso, Berlin; Metropolitan Ear and Throat Hospital, Lond., Secretary of; Memorial Hospital, Buluwayo, Secretary of; Macclesfield General Infirmary, Secretary of; Dr. W. Murrell, Lond.; Messrs. C. Mitchell and Co., Lond.; Manchester Medical Agency; Messrs. Masson et Cie, Paris.

N.—North Staffordshire Infirmary, Stoke-on Trent; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Dr. C. E. *Ormerod*, Bexhill.

P.—Portuguese Legation, Lond., Secretary of; Messrs. Parke, Davis and Co., Lond.; Messrs. C. Pool and Co., Lond.; P. I. B.; Poplar Union, Clerk of; Messrs. Peacock and Hadley, Lond.; Portable Building Co., Manchester; Plumbers, Worshipful Company of, Lond.

R.—Dr. J. B. Ryley, Lond.; Mr. R. Redpath, Newcastle-on-Tyne; Mr. Henry Rundle, Southsea; Royal Southern Hospital, Liverpool, Secretary of; Dr. G. Archdall Reid, Southsea; Mr. Wm. Roper, Lond.; Rural Sanitary Authority.

S.—Dr. Z. T. Sowers, Baddeck, Nova Scotia; Sanguinosa Co., Lond., Secretary of; Salford Union, Clerk of; Dr. J. F. W. Silk, Lond.; Stockport Infirmary, Secretary of; Messrs. S. Smith and Son, Lond.; Dr. J. A. Shaw-Mackenzie, Lond.

T.—Mr. Gopal R. Tambe, Indore; Technical Education Board, London County Council, Secretary of; T. H. S.; T. S. B.

U.—University College of South Wales, &c., Cardiff, Registrar of.

V.—Dr. Ralph Vincent, Lond.; Mr. Van Praagh, Lond.; Visanus Co., Glasgow.

W.—Dr. J. F. Woodyatt, Halifax; Professor A. E. Wright, Lond.; Dr. J. E. Webb, Looe; Messrs. W. Wood and Co., New York; Messrs. Wright and Son, Wirksworth; Mr. H. B. Wilkinson, Ivybridge; W. E. G. F.; W. E. F.

Y.—Yorkshire College, Leeds, Secretary of.

Letters, each with enclosure, are also acknowledged from—

A.—Alpha, Manchester; A. V., Castle Cary; A. L.

B.—Mr. F. N. Beck, Wednesbury; Mr. J. H. Breach, Yattendon; Messrs. Brown, Gould and Co., Lond.; Mr. H. R. H. Bigg, Lond.; Messrs. Boothroyd, Sons and Rimmer, Southport; Mr. R. Brereton, Mountrath; Dr W. Bannerman, Clitheroe; Borough Hospital, Birkenhead, Hon. Treasurer of; Mr. K. J. Bhamgara, Bollington; Mr. W. P. Bothamley, Lond.

C.—Mr. J. B. Cameron, Lond.; Mr. L. P. Colat, Bordeaux; Messrs. Curry and Paxton, Lond.; Messrs. Carter, Lond.; C. B. H.; C. H. P.; C. B. M.; Mr. J. N. Cregeen, Liverpool; Messrs. Samson Clark and Co., Lond.; Mr. P. H. Court, Warsop; C. F. K.; C. M.

D.—Dr. T. Domela, Murren; Mr. J. T. Davenport, Lond.; Mr. J. Diggens, Lancaster; Dr. J. H. Davies, Port Talbot; Dumfries and Galloway Royal Infirmary, Treasurer of; Dr. N. Davis, Lechlade; Dr. W. J. Dougherty, New York; Messrs. Dowie and Marshall, Lond.; Devonshire Library, Buxton, Manager of.

E.—Dr. E. Elsmere, Leominster; Miss Etheridge, Stoke Ferry; E. E. S.

F.—Dr. G. C. H. Fulton, Eston; Fellows Medical Manufacturing Co., New York; F. F. H.; F. V. B.; F. G. L.

G.—Gowers, Ltd., Maldon; Great Eastern Railway Co., Lond., Continental Traffic Manager of; Messrs. Giles, Schacht and Co., Clifton; G. J. B. H.; General Post Office, Lond., Secretary of; Dr. J. Gordon, Liverpool; Mr. E. Gooch, Lond.

H.—Mr. J. J. Harding, Ballincollig; Mr. J. Hoole, Parwich; Mr. C. S. Harwood, Staines; Mr. B. Herder, Freiburg, Germany; Messrs. Hooper and Co., Lond.; H. L. G.; H., Westminster; Horsfall Destructor Co., Leeds.

I.—Irish Medical Association, Dublin, Secretary of; Invernith Lodge Retreat, Colinsburgh, Secretary of.

J.—Mr. J. D. Jones, Blaenau-Festiniog; J. G. T. E.; J. W. W.; Mr. E. O. Jones, Old Colwyn; J. M.

K.—Dr. O. F. Knight, Portobello.

L.—Locum, Altrincham; Lady Superintendent, Streatham; Dr. J. Lambie, Glasgow; L., Brockley; L. F. S.

M.—Dr. H. Macnaughton-
Lond.; Dr. J. McCl
Leyton; Mr. C. T. B. M
Marden; Mr. W. Morgan,
avon; Manchester Corpo
Treasurer of; Dr. J. Mo
Boulogne; Medical Soc
Victoria, Melbourne, Hon
surer of; Messrs. H. Mull
Co., Lond.; Mr. B. N. Mol
Richmond, Yorks; Mr. M
MacGilvray, Brynmawr;
MacGibbon, Bramley;
W. J. H. MacGilvray, Bryn

N.—National Dental Ho
Lond., Secretary of; N
and Norwich Hospital, Sec
of; N. C. B.

O.—Messrs. Ormerod and Du
Workington; Mr. J.
Liverpool.

P.—Dr. F. W. Pavy, Lond
D. W. Patterson, Newcas
Tyne; Dr. P. Paterson, Gla
Mrs. R. W. Pendleton, Bri
Messrs. Pownceby and
Lond.

R.—Mr. E. J. Reid, Lond;
Society of Tasmania (M
Section), Hobart, Secreta
Messrs. Robinson and
Chesterfield; Royal Albert
pital, Devonport, Secreta
R. C. N.; R.

S.—Dr. W. C. Smith, Wor
Park; Lieutenant Colone
Semple, R.A.M.C., K
India; Mr. E. Smyth,
ferry; Messrs. W. H. Smit
Son, Birmingham; St.
Hospital, Lond., Libraria
Messrs. Spiers and Pond,
Mr. F. E. C. Singleton, Fi
Switzerland; St. Andrew's
pital, Northampton, Sec
of; Mr. A. Stenhouse, Glas
Southampton Corporation,
surer of.

T.—Mr. J. T. Thibou, An
West Indies; Mr. T
Ashby-de-la-Zouch; Mr
Tatham, Potter Hanworth
H. G. Toombs, Exeter;
Thin, Edinburgh; T. J.

V.—Vinolia Company,
V. G. W.

W.—Dr. A. H. Wood, Long
Mr. H. F. Wigg, Lond;
A. O. Way, Bassett; Wo
House Hospital, Exeter; M
J. Wright and Co., Bristo
W. Whitla, Belfast; Mr.
White, Workington; Mr
Walker, Greenock; W. T. S
A. C. White, Oldham; Mr.
Wilson, Shirebrook; W.
Messrs. H. Wilson and
Lond.

Y.—Dr. E. S. Yonge,
chester.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENC

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5
Official and General Announcements	Ditto	0 5
Trade and Miscellaneous Advertisements	Ditto	0 4
	Every additional Line	0 0

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remitt

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Man Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addre

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom A tisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières Paris

The Milroy Lectures
ON
THE CAUSES, PREVALENCE, AND CONTROL OF PULMONARY TUBERCULOSIS.

Delivered before the Royal College of Physicians of London on March 5th, 10th, and 12th, 1903,

By H. TIMBRELL BULSTRODE, M.A., M.D. Cantab., D.P.H.,

INSPECTOR, MEDICAL DEPARTMENT, H.M. LOCAL GOVERNMENT BOARD; LECTURER ON PREVENTIVE MEDICINE, CHARING CROSS HOSPITAL MEDICAL SCHOOL.

LECTURE III. (*continued*).[1]

Delivered on March 12th.

Certain English Sanatoriums.

I am afraid that the facts which I propose to bring to your notice with regard to sanatoriums may prove somewhat disappointing to those who are alone familiar with the palaces in Germany and with some of the elaborate private sanatoriums of this country. Those, too, who are connected with the King's Sanatorium scheme may, I fear, be almost disposed to cast ridicule upon the relatively humble buildings with which I propose here to concern myself. But as my remarks must be limited I can deal only with one aspect of the problem and I therefore propose to select for consideration sanatoriums which are intended for those other than the rich or comfortably circumstanced. My interest and my work lie rather in the public aspect of the problem. I shall therefore omit all references to private institutions and deal only quite incidentally with what is being done by means of private munificence. By private munificence I have in mind rather sanatoriums such as the King's Sanatorium and those institutions which have been, or are being, erected in Delamere Forest for the relatively poor of Liverpool and Manchester. All honour to the founders and promoters of these and similar institutions, but such institutions are the results of an uncertain and spasmodic force the future behaviour of which cannot be predicted or reckoned upon.

I propose, therefore, to draw attention to what is being done in certain of the counties of this country in a more or less systematic fashion. All these efforts appear, so far as I can judge, to be due, at any rate in the first instance, to the foundation of a local branch of that admirable organisation the National Association for the Prevention of Consumption and other Forms of Tuberculosis. I say this because I desire to accord the credit to the organisation which appears to me to be responsible for at least the initiation of practically all the schemes to which I am about to refer. At present there are but few sanatoriums which have been thus brought into existence, but there is, I think, every prospect that the number will be shortly materially augmented. The example has been set by the vigour of several of our northern counties, and the vigour of the north seems gradually to be extending to the south, as is borne witness to by the fact that since this lecture was delivered a committee of the three counties of Wilts, Somerset, and Gloucester has, largely through the efforts of Dr. Lionel A. Weatherly, laid the foundation-stone of a sanatorium for the tuberculous poor of this district on what Dr. J. Tubb-Thomas, the Wiltshire county medical officer of health, tells me is an ideal site of 50 acres at Winsley, near Bath. This scheme has been promoted mainly by public subscriptions, but several sanitary authorities, including those of Bristol, Bath, Swindon, and Gloucester, have made arrangements to maintain beds, as also have certain business firms and companies, among them being the Great Western Railway Company. I learn also from a report kindly sent to me by Dr. F. G. Bushnell that a sanatorium has been recently opened at Didworthy, near Brent, for the use of consumptives in the counties of Devon and Cornwall. In connexion with this institution the Plymouth board of guardians propose to subscribe for the use of one bed. In Dorsetshire Lord Ilchester has given a site and a donation for the purpose of aiding the erection of a sanatorium for the poor of that county. In Hampshire Dr. A. Mearns Fraser has endeavoured to bring about the erection of a county sanatorium, but his efforts have not as yet received the support they deserve. In Wales there are indications of progress.

But the sanatoriums to which I propose specially to refer are (1) the Westmorland Sanatorium, (2) the Durham Sanatorium, (3) the Nottingham Sanatorium, and (4) the Worcestershire Sanatorium. I have selected these institutions after visiting practically all the public sanatoriums in this country, because I think they afford the most useful lessons for future work.

The first two of these had for their beginning an existing mansion; the latter two are practically new structures. Now all four of these institutions have been originated and are carried on by local philanthropy of an administrative and pecuniary nature. But as time goes on they are tending in some degree to become what I may call semi-public institutions—that is to say, the local sanitary authorities are contributing towards the annual expenditure of the institutions and are also in some cases making such an annual contribution as to secure for themselves the right to nominate patients for one or more beds.

The Westmorland Sanatorium.[2]—I have found considerable difficulty in selecting the sanatorium the details of which in the first place to bring before you, but I think that the Westmorland Sanatorium conforms most closely to the type which is evidently, whether consciously or unconsciously, being kept in view in other schemes. My main reason, however, for selecting the Westmorland Sanatorium is not on account of the nature of the building or the excellence of the site but because its committee has up to the present succeeded better than any other in procuring the coöperation of the local sanitary authorities more immediately interested in the institution. Other schemes have developed, and are developing, upon the same lines and some of them may eventually afford better illustration of the principle I am now discussing. In what I shall have to say and to show with respect to this sanatorium I am much indebted to Dr. W. Rushton Parker who has done such excellent work in promoting the institution which owes its origin very largely to the generosity of another member of our profession, Dr. W. S. Paget-Tomlinson.

The Westmorland Sanatorium, which is erected in a picturesque position at an elevation of 110 feet and on a limestone rock formation, overlooks Morecambe Bay. It is two miles from Grange-over-Sands and 11 miles from Kendal. The sanatorium was i [illegible] home for 16 patients, [illegible] at an expenditure of [illegible] building for 16 consun [illegible] There is now, in 1903, accommodation for 24 patients—i.e., eight in each of two wards and two in each of four sleeping shelters. But the point to which I wish particularly to draw attention in connexion with this institution is that no fewer than 21 of these beds have been appropriated by various local authorities in the county at a rate of £60 per annum for each bed. This fact is brought out by the first of the following tables. As the average cost of maintenance, however, is about 36*s.* a week there is a heavy deficit arising out of the arrangement to allow beds to be appropriated at 25*s.* a week, and as the 24 beds have never yet been filled by patients from within the county of Westmorland what may be called "outsiders" are taken in at a charge which provides a slight margin of profit.

The usual length of stay in the early cases is 12 weeks, in the moderately advanced 18 weeks, and in the quite advanced cases 24 weeks. The result of the three years' working shows that the vast majority of those admitted in the early stages, even after an average stay of three months, recover and are able to return to some years of useful work. Of the moderately advanced cases, where the average stay of the patient is four and a half months, a considerable but smaller number are able to do some useful work, though many relapse and some few soon die. The majority of the patients in the advanced cases die within a year, even after six months' treatment, and only a very small minority return to any useful occupation. The further experience of this sanatorium has been that much of the curative value of the institution is diminished by the presence of the advanced cases which although staying some six months in the institution are of but little use in a working sense thereafter. In order to surmount this difficulty efforts are being made to procure accommodation at some place other than the sanatorium for the relatively hopeless cases. The county council has taken the matter in hand and there is apparently a fair prospect that in the near future some such provision will be made. I have thought that it might be both useful and interesting were I to give here a table from the last annual report of the Westmorland Sanatorium showing the source of income and the expenditure (Table I.), as also other tables (Tables III., IV., and V.) with regard to the history of the several groups of patients. We are probably all familiar with tables relative to German sanatoriums, but the Westmorland figures will have greater interest for Englishmen. I venture to think that these tables may be very instructive reading to many persons outside the limits of our own profession. The table relating to "consumption slight" (Table II.) is of great interest as an illustration of the importance of securing patients in the earliest stage of the malady. In each class the cases are marked off into three distinct years. It is important to note that throughout the tables where tubercle bacilli are "not found" it is not invariably the case that they have been diligently sought.

---

[1] Lecture I., the first and second parts of Lecture II., and the first part of Lecture III., were published in The Lancet of July 11th (p. 73), 25th (p. 206), and August 1st (p. 297) and 8th (p. 361), 1903, respectively.

[2] This lecture was illustrated by numerous lantern slides relative to British and foreign sanatoriums.

TABLE I.—STATEMENT OF ACCOUNTS OF WESTMORLAND SANATORIUM FOR THE YEAR ENDING DEC. 31ST, 1902.

General Maintenance Fund.

Income.	£	s.	d.
Westmorland County Council (two free beds)	120	0	0
Kendal Corporation (free bed)	60	0	0
Kendal Guardians (free bed)	60	0	0
East Ward Guardians (free bed)	60	0	0
West Ward Guardians (free bed)	60	0	0
South Westmorland Rural District Council (free bed)	60	0	0
Kendal (four free beds)	241	6	6
Windermere and Bowness (two free beds)	117	2	6
Milnthorpe, Arnside, and Beetham (free bed)	58	17	6
Ambleside (free bed)	66	9	6
Kirkby Lonsdale (free bed)	75	0	6
Sedgwick and Endmoor (free bed)	60	0	0
Heversham and Levens (free bed)	60	0	0
Appleby and Kirkby Stephen (free bed)	59	2	5
Burneside (free bed)	60	0	0
West Ward (free bed)	60	0	0
General subscriptions	231	9	6
Donations	26	7	9
Barton garden party	4	6	6
Payments from patients through Kendal Charity Organisation Society, &c.	54	15	6
Extra patients at 25s. per week	18	2	6
Non-county patients at £2 2s. per week	247	5	6
Extra payments from South Westmorland Rural District Council	25	0	0
Collecting box	2	18	6
Sale of waste food	4	15	0
	£1892	19	8

Expenditure.	£	s.	d.	£	s.	d.
I.—PROVISIONS:—						
Meat	317	3	6			
Bread and groceries	205	6	3			
Milk, butter, and eggs	246	11	10			
Fish, poultry, vegetables, fruit	126	9	10			
Malt liquors	4	0	0			
				899	11	5
II.—MEDICAL:—						
Drugs and disinfectants	40	9	5			
Wines and spirits	3	13	6			
				44	2	11
III.—DOMESTIC:—						
Laundry	70	4	6			
Coal, coke, and oil	60	19	6			
Carriage of parcels	2	16	9			
Hire of conveyances, carting, &c.	17	10	0			
Sundries—Matron's	20	18	5			
" General	21	15	4			
				200	4	6
IV.—ESTABLISHMENT CHARGES:—						
Rent and taxes	77	0	0			
Repairs and renewals	116	16	2			
Man's wages	63	3	0			
Stable expenses	23	8	5			
				280	7	
V.—SALARIES AND WAGES:—						
Medical superintendent	169	1	4			
Matron	60	0	0			
Nurses	59	4	0			
Servants	85	11	4			
				373	16	8
VI.—ADMINISTRATION:—						
Printing and stationery, &c.	39	5	10			
Stamps, telegrams	9	9	11			
				48	15	9
Commission and postages, less interest, June 30th				1	2	8
Interest, &c., December 31st				2	0	10
				1850	2	4
Balance transferred to building fund				42	17	4
				£1892	19	8

The Durham County Sanatorium.—This institution, which was founded in 1900 by the Durham branch of the Society for the Prevention of Consumption and other Forms of Tuberculosis, is situated just outside the village of Stanhope in the Wear valley, and Mr. John Gray, the medical officer, was good enough to show me over the institution and to furnish me with photographs which I now exhibit. The site, which is an attractive one, consists of two and a half acres of land at an elevation of some 700 feet above ordnance datum and the neighbourhood of the sanatorium is admirably suited for the exercise of the patients. It is well protected both naturally and by means of a high wall which encircles the grounds. The main building consists of a country house altered in such fashion as to serve the needs of an open-air sanatorium. A new wing has now been added and this, with the addition of a detached building which has been converted into bedroom accommodation, brings the total number of beds up to 29—i.e., 20 for females and nine for males. It is hoped soon to extend the buildings so as to provide for 40 patients. The house and grounds are at present held on an 80 years' lease at a rental of £35 per annum. The sanatorium is supported by the payments of patients, by subscriptions from local sanitary authorities, from industrial societies and other groups of workmen, as also by voluntary subscriptions. For instance, the income for the year ended April 30th, 1902, was £1556 17*s* 4*d*, and towards this sum the following amounts were contributed weekly payments by patients, £840 15*s* 10*d*, payments of bodies of workmen, £301 18*s*, from local authorities, £170, and from annual subscribers, £189 15*s* 6*d*, making a total of £1502 9*s* 4*d* The weekly charge for those patients who are able to pay is £2 but the committee has discretionary power to remit either the whole or part of this sum As a general rule, no patients are allowed to stay longer than 16 weeks and the same patient cannot, except in exceptional circumstances, be admitted twice in the same year

Dr William Robinson of Sunderland, to whose efforts the erection of the sanatorium is in large part due and to whom I am indebted for the information here given, tells me that during the first year with 12 beds, the weekly cost per patient was 31*s* 10*d*, during the second year, with 18 patients, about 28*s*, and it is expected that with 29 patients the cost will work out at about 25*s* These figures include all expenses By the scheme of maintenance adopted the sanatorium is almost self supporting, only one sixth of the income coming from private subscriptions The committee may therefore claim to have solved the difficulty of maintaining a sanatorium for the working classes I give further on a table (Table VI.) taken from the medical officer's last annual report.

The Nottinghamshire Sanatorium —My object in bringing this sanatorium to the notice of the College is that the institution, which was founded in 1901, largely through the efforts of Dr W B Ransom of Nottingham, for persons of limited means, affords an illustration of the cost of what is known as a "temporary"—i e, wooden—building The sanatorium is erected at Ratcher Hill in Sherwood Forest, near Mansfield, upon an elevated site consisting of 50 acres of land presented by the Duke of Portland The soil is gravel and the sanatorium stands in grounds which are covered with pine trees and heather and from which an admirable view of the surrounding country is obtained The cost of erection, furnishing, lighting, sewering, water supply, &c, slightly exceeded £6000 and this sum was provided solely by voluntary subscription Among the public bodies subscribing were the corporation of Nottingham (£1000) and the town council of Mansfield (£200)

The building itself is a wooden structure erected upon a brick base and having a galvanised iron roof The central portion of the structure, which has two storeys, is devoted to administrative purposes and is of such dimensions as to afford accommodation for a larger number of patients than the institution at present contains Running out from each side of this administrative centre is a wing for the accommodation of patients, one wing for males and the other for females There is a small single ward in connexion with each wing and on either side of the main wards is a glass-roofed verandah, closed at either end and open in front, which acts as a *Liegehalle* and in which certain of the patients sleep during the night. In the grounds close to the sanatorium are two single shelters for male patients

The detai
better class
structured of
an air space
as to afford
tion is provided for by windows and in the roofs of each large ward are two extraction shafts Lighting is by means of electric light generated upon the site and warming by means of low-pressure pipes arranged in the form of radiators The lavatories are disconnected from the wards and the sewage is conveyed to a distance and treated on biological lines The

TABLE II —GIVING PARTICULARS OF 30 CASES OF CONSUMPTION TREATED IN WESTMORLAND SANATORIUM IN WHICH THE DISEASE WAS SLIGHT

Consolidation barely detectable, tubercle bacilli rarely found, no high fever

Case	Sex	Weeks in sanatorium	Weight gained in pounds	Bacilli	Previous illness	State on admission	Months since discharge	History after discharge
1	M	8 2	7	Not found	2 months	Both lungs slightly affected	30	Full farm work 2½ years
2	F	15 2	15¼	,,	Few months	One lung slightly affected	24	Quite well, at school 2 years
3	M	23 5	22½	,,	,,	Both lungs slightly affected	24	Railway checker 2 years, quite well
4	M.	17 2	7¼	,,	15 months	One lung slightly affected	17	Joiner nearly 1½ years, quite well
5	M	4 6	10	Not found	6 months	One lung slightly affected	20	Mill work 1½ years, quite well
6	M	20 5	14¾	,,	5 ,,	One lung distinctly affected	15	Groom over a year, well
7	F	10 2	12	,,	5 ,	Pleurisy (? tuberculous)	15	Housework 1¼ years, quite well.
8	F	7 4	3	,,	9 ,,	No undoubted signs	15	,, ,,
9	M	17 1	17¼	,,	1 year	One lung slightly affected	10	Joiner 10 months quite well
10	F	9 5	3¾	,,	18 months	,,	12	Housework 1 year, quite well.
11	M	8	14¾	,,	2 weeks	,,	13	Stable work 1 year, quite well.
12	M	21 4	10¼	,,	1 month	,,	7	Dairy lad, quite well
13	F.	12·2	11	,,	4 months	,	10	In service 10 months, quite well.
14	M	12	35½	,,	1 month	,,	9	Convalescent after severe pleurisy
15	F	8 3	8¼	Not found	2 months	One lung slightly affected	10	Relapsing
16	M	11	2¼	,,	1 month	,,	9	At school, quite well
17	M	7	16½	,,	1 week	Two lungs slightly affected	9	Errand lad, relapsing
18	M	8	13	,,	1 month	One lung slightly affected	9	Mill work, well
19	M	15 5	14¼	,,	2 months	,,	6	Gardener, well
20	M	13	5½	,,	2 years	,,	7	At work, quite well
21	M	13 5	10¾	,	1 year	,,	5	Labourer, quite well
22	F	9 4	15	,,	3 months	,,	5	Working, in splendid health.
23	M	8	15½	,,	2 weeks	,,	5	Policeman, quite well.
24	F	15 2	8½	,,	1 month	,,	1	At home, quite well
25	F	—	—	,,	,	Two lungs slightly affected.	Still in	—
26	M	7 2	19¼	,,	5 months	One lung slightly, pleuritic effusion	1	At work and well
27	F	—		,,	3 months	One lung slightly affected	Still in	
28	M	3 2	3½	,,	1 month	,,	1	Quite well.
29	M	—		,,	—	,,	Still in	
30	F	—	—	,,	—	,,	,,	

county council did not feel itself able to accept a certain provisional offer on the part of the owner of the property. The county council, however, voted £300 towards the expenditure necessary. Since the estate has been taken over two substantially constructed electric-lighted shelters, one for eight males and the other for eight females, have been erected out of moneys provided by public subscription The patients are admitted by a medical board comprising four medical men and one layman and the current expenses are furnished by public subscription and by the contributions from employers and bodies of workmen. An annual subscription of £75 gives the right to nominate suitable patients to one bed for a year and the King's Norton board of guardians is among those which thus secure a bed. A few paying patients are admitted at a charge of 30*s.* per week. There are a resident medical officer and a complete staff.

TABLE VI.—*Summary of Results of First Two Years.*

Year.	Cases discharged after treatment.	Condition on April 30th, 1902.		
		At work.	At home.	Dead.
1900-01... ...	"Cavity" 20	6	2	12
,, ...	"Consolidation" 16	12	2	2
1901-02... ...	"Cavity" 25	12	8	5
,, ...	"Consolidation" 30	23	5	2
Totals ...	 91	53	17	21

I must in passing make reference to the experiment which is being made at Clare, in Suffolk, through the efforts of Dr. Jane Walker who has rented a cottage in that village for the purpose of providing accommodation for those who are unable to pay even the low weekly sum of from two to three guineas demanded by the more humble sanatoriums. Dr. Walker has, I understand, found that a charge of 15*s.* per week, exclusive of washing, is sufficient to pay all expenses save the cost of rental, which in this case is a relatively insignificant sum. I was glad, therefore, to learn when visiting the East Anglian Sanatorium at Nayland that Dr. Walker hopes to be able to provide accommodation for a certain number of less well-to-do consumptives upon a remote portion of that truly admirable site and under conditions which will in no sense interfere with the privacy of the present sanatorium.

It is impossible to state at all accurately the number of sanatoriums which at present exist in the British Isles because in the first place it is difficult to decide upon what basis the computation is to be made, and in the second because there is no system of compulsory registration of such institutions in force.

But, excluding Poor-law institutions and including hospitals for consumption and homes for the dying, there would appear to be, approximately speaking, about 60 institutions, public or private, at which cases of pulmonary tuberculosis may be accommodated. The number of beds which are embraced by these institutions is probably under 2500 and assuming each bed to be occupied for three months there may be in England and Wales, Ireland and Scotland, some 10,000 beds available annually. If to this number the accommodation available at workhouses and infirmaries be added the total must be very materially augmented.

Now I cannot pretend to take part in the discussion as to the relative values *quâ* cure of large and small establishments. The matter is doubtless one of importance, but I hope I shall be forgiven if I venture to suggest that it is subordinate to the main issue, and it is the main issue which in this vast problem of tuberculosis we must, I think, be careful to keep before our eyes.

So far as I can judge, the main object in the provision of sanatoriums is to secure means whereby the tuberculous patient may be taken out of the environment in which he either contracted or developed his illness and to put him under conditions in which he may cease to furnish hospitality to the tubercle bacillus. The most important factors in promoting this alteration of tissue are an abundant supply of suitable food, rest, fresh air, light, and freedom from anxiety. These essentials can be provided almost as well in a small, suitably constructed establishment as in a large three-storeyed institution, the adequate ventilation of which is somewhat difficult of attainment, and hence I question the desirability of waiting until a marble palace can be provided and in the meantime allowing an uncertain number of people to die whose lives might otherwise be prolonged. Obviously, a suitable site must be procured, but much of this is a very relative matter; some sites are altogether unsuitable, but between the best and the second best the rate of recovery among the patients is not perhaps so very great. I am reminded by an admirable address by Dr. William Robinson of Sunderland that Dr. Léon Petit once said: "In all sanatoriums, whatever their geographical position, the curative results obtained are nearly the same, provided that the hygienic method is applied there in all its scientific rigour." It is for this reason that in the short sketch I have given of the subject I have dwelt upon the more humble accommodation which is at present being made in several parts of the country.

Homes for advanced consumptives.—Looked at from a purely preventive standpoint there is obviously far more importance to be attached to the control of cases which are likely, owing to their domestic environment, to be some danger to the community than there is to be attached to those cases which are in the earlier stages of the disease but who are expectorating little, if at all.

Although we may not altogether agree with Professor Koch that the action hitherto taken in this country in the direction of isolation has been the important factor which he supposes in bringing about the diminution of the disease, we must, I think, recognise the utility of providing accommodation for such cases as appear from their environment to be a source of special danger. In saying this I do not wish to lose sight of the proportions of the issue or to suggest for one moment that there shall be anything approaching compulsory isolation even for advanced cases. My point is simply this: that accommodation for advanced cases housed under obviously unwholesome and, for their relatives, dangerous conditions would be desirable. This aspect of the question has been recently faced in a practical fashion by the Westmorland county council, and Dr. Rushton Parker has written a highly suggestive paper upon the subject. I will draw attention to a few of his more important points, as they bring out the practicability of schemes of this nature and present the matter in a very concrete form. Dr. Parker thinks that about 35 out of the 50 or 60 deaths which occur annually in Westmorland from tuberculosis might, were there an institution for advanced cases, die therein. He thinks that a home with 20 beds would suffice for 40 cases remaining six months each and he calculates the total cost per annum to be about £1300, or £65 a bed. About one-sixth of the cases would, he thinks, be chargeable to the guardians. The county council has, he states, legal power to provide such a home and the cost thereof would be covered by a penny rate. He points out that the 8000 consumptives in the English workhouse infirmaries cost £600,000 a year, or £75 per head.

I regret that time will not enable me to refer to the work which is being done in connexion with towns such as Manchester, Liverpool, and Leeds, but I shall hope at a later date to say something as to this.

In bringing these lectures to a close it is perhaps hardly necessary for me to add that all those who are engaged in this endeavour to lighten the burden of tuberculosis upon the human species have my very fullest sympathy. My object in examining the problem somewhat critically has been to prevent, if possible, the reaction which I fear is inevitable unless the more extreme views are a little toned down and prophecies as to the early extinction of the disease through the agency of sanatoriums alone are less freely indulged in. It is the obvious duty, as it is clearly the desire, of all to heal the tuberculous sick and to protect the weakly against the disease. As to this all who face the matter seriously are in agreement. Our differences are merely as to the degree of communicability of the malady and as to the relative importance of each of the factors proposed to hasten the continued decline of the disease.

If I were told to select three, and three only, of the agencies with which I have in some degree dealt in these lectures as those upon which, assuming always a sufficiency of food, I would place most reliance as regards the control of pulmonary tuberculosis, I should arrange them somewhat in this order. 1. The education of older children in the principles of health, and the periodical physical examination of all school children with a view to improving the health of those prone to tuberculosis or who may already be suffering from the disease in an unrecognised though not unrecognisable form. The direct and indirect results which would accrue from this would soon make themselves felt in the direction of an unwillingness on the part of the people to occupy slums or to dwell in places where the sun rarely penetrates. It would also result later in a return to local and perhaps central administrative bodies of representatives who were more alive to the importance of the public health aspect of their duties than is always the case at the present time. 2. Some such system of compulsory insurance against sickness and invalidity as obtains in Germany and which, it is important to note, makes for the provision of sanatoriums, the support of those threatened with illness, and the general well-being of the poorer classes. 3. Better housing and improved conditions of employment of the working-classes—i.e., more light, more air-space, better ventilation, and greater cleanliness in the home, the workshop, and the factory.

And now, in conclusion, may I, Mr. President and Fellows, thank you once more for the honour you have done me in appointing me to deliver these lectures and may I also express my great appreciation of the attention with which you have been good enough to follow my efforts to examine dispassionately certain aspects of this absorbing problem.

A Lecture

ON

INFANTILE SCURVY.

Delivered at the Medical Graduates' College and Polyclinic

BY W. S. COLMAN, M.D., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO ST. THOMAS'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

LADIES AND GENTLEMEN,—Infantile scurvy is a disease which has only received recognition during the last 30 years. Owing to the growing practice of bringing children up "on the bottle" cases are encountered with increasing frequency. It was mainly at the Hospital for Sick Children, Great Ormond-street, that its nature was first recognised by Dr. W. B. Cheadle and its natural history, pathology, and symptomatology were completely worked out by Sir Thomas Barlow. It is true that isolated cases of the condition had been previously met with, but except in one case recorded by [illegible] The first [illegible] 1876 by Sir [illegible] mond-street [illegible] f the long [illegible] ture of the [illegible] published Three Cases of Scurvy supervening on Rickets in Young Children[2] and insisted on its identity with the scurvy of adults. In 1881 Gee published, in the St. Bartholomew's Hospital Reports, a series of cases under the name of Osteal or Periosteal Cachexia and in 1882 Cheadle again maintained the scorbutic nature of the affection in a second paper on Osteal or Periosteal Cachexia and Scurvy.[3] Cases were also published in Germany under the title of Acute Rickets. But while the credit of pointing out the nature of the affection belongs to Cheadle, it was a remarkable paper read by Barlow in 1883 before the Royal Medical and Chirurgical Society which secured general recognition of Cheadle's views. This paper was entitled "On Cases described as Acute Rickets which are probably a Combination of Scurvy and Rickets, the Scurvy being an Essential and the Rickets a Variable Element." Illustrative clinical cases were minutely described, together with an exhaustive analysis of the post-mortem [illegible] (one being the case published [illegible] The original paper should be [illegible] the subject; it is a model of observation, description, and accurate reasoning and so complete that little has been added to our knowledge since and scarcely a line would require any modification to-day. After the publication of this paper the essentially scorbutic nature of the affection quickly gained general recognition and at the present time it is known in France and Germany as "Barlow's disease." The name "acute rickets" died hard and was followed in this country by "scurvy rickets." At the present time, however, Barlow's contention that rickets is an accidental association and is not invariably present has gained general acceptance and the term "infantile scurvy" is more frequently and appropriately employed. During the last 20 years many cases have been published. Barlow himself took up the subject in the Bradshaw lecture delivered by him at the Royal College of Physicians of London in 1894 and Cheadle summed up our knowledge in an admirable article in Allbutt's "System of Medicine," vol. v., in 1898. There is yet, however, much left obscure in connexion with the way in which scurvy is brought about, although we know that one constant factor is the absence of sufficient quantity of certain kinds of fresh vegetable or animal food. These matters will be more fully discussed later.

Symptoms.—The clinical picture presented by a child suffering from severe scurvy is so characteristic that anyone conversant with the disease can usually recognise it at a glance. The child usually shows no emaciation and, in fact, is usually well supplied with subcutaneous fat. The face is pale and in the later stages has a peculiarly earthy tint. He may be lying quietly in his cot without any obvious discomfort, but if anyone approaches the cot he screams with apprehension and if moved in any way gives a peculiarly piercing shriek of pain. If the bedclothes are removed the attitude of the child is also characteristic. Although he may be screaming and furious at the medical man's approach he does not kick his legs about as a child in a temper naturally would, but the lower limbs lie quite still, everted, with the thighs abducted and the knees a little flexed. When the legs are gently handled there is very marked want of tone of both skin and muscles, as well as actual feebleness of the muscles. The bones of the limbs are tender and usually there are local swellings due to subperiosteal hæmorrhages, most frequent just above or below the knee. At the site of these swellings the tenderness is extremely acute and the skin is often tense and glossy. On handling the limb soft crepitus may be elicited, fracture having taken place at or near the epiphyseal line. The arms are as a rule less tender, but they may be the only site of hæmorrhage, which is most frequent near the upper end of the humerus. There is occasionally hæmorrhage from the periosteum lining the orbit, giving rise to proptosis and ecchymosis of the eyelids. An excellent coloured illustration of this condition is given by Cheadle in Allbutt's "System of Medicine."

Changes in the gums.—If no teeth have been erupted changes in the gums may be absent or limited to an ecchymosis over the site of the incisors. Similarly it has been noticed in scorbutic adults that the gums are not spongy at all if the patients are edentulous. When any teeth have been cut there are nearly always changes in the gums, although one or two cases have been recorded in which the gums were healthy. In very mild cases there may be merely slight swelling and hyperæmia, but in marked cases the hyperæmic gum becomes purple from extravasated blood and the edge of the gum swells up so that the teeth may be almost concealed in a dark fungating mass which bleeds at the least touch. The gums readily ulcerate and sloughs form which disengage a disgusting "carrion-like" odour. This condition of the gums was also a prominent condition in adult scurvy. Joinville, in his history of the Crusade under Louis IX. (in connexion with an outbreak of scurvy outside Alexandria), writes: "The barbers were obliged to cut away very large pieces of flesh from the gums to enable their patients to eat. It was pitiful to hear the cries and groans of those on whom the operation was being performed; they seemed like the cries of women in labour." The rapidity with which these spongy gums subside when the patient is placed on a proper diet is as striking as the recovery of the periosteal lesions.

Of other scorbutic symptoms epistaxis and hæmaturia are not uncommon and lead to increase of the anæmia, but are not usually severe. Petechiæ and subcutaneous echymoses, so common in adult scurvy, are only of occasional occurrence in the infantile form.

Mild cases.—You must not always expect to meet with the symptoms as fully developed in all cases, especially in the early stage. Cases occur, for instance, in which

---

[1] Transactions of the Pathological Society of London, vol. xxvii., 1876.

[2] THE LANCET, Nov. 16th, 1878, p. 685.

[3] THE LANCET, July 15th, 1882, p. 48.

the only symptoms are fretfulness and sponginess of the gums; in others, tenderness of the limbs on active or passive movement without any periosteal swellings, and occasionally hæmaturia may be the only symptom. I may mention three cases of this latter class. A well-developed boy, aged ten months, had had a diet consisting only of sterilised milk for four months. He then began to pass considerable quantity of blood in the urine and a diagnosis of renal sarcoma had been made. As soon as fresh milk and orange-juice were substituted for the sterilised milk the hæmaturia disappeared and the child has grown up perfectly healthy. In a second case a boy, aged 13 months, had been fed almost exclusively on a malted food. He had hæmaturia with practically no bone tenderness. He had his eight incisors and the gums over them were quite healthy but there was distinct sponginess over the site of the future first premolars. In the third child, aged eight months, there were hæmaturia and general tenderness without swelling. The blood was bright red. The child died suddenly from some unexplained reason the day after admission. The kidneys and bladder appeared healthy, but there was a submucous ecchymosis, probably scorbutic, in the membranous part of the urethra.

Association with rickets.—As would be expected, the dietetic errors which cause scurvy also predispose to rickets, so that the two conditions are often present together, but scurvy may be met with where there is no sign of rickets, just as rickets is often met with alone. In consequence of the frequent association of rickets there may be catarrhal troubles of the respiratory and alimentary tract due to the latter condition, but scurvy alone rarely causes any lung complications and except for the trouble in the gums scarcely ever sets up any disturbance in the alimentary canal. In fact, the appetite is usually large, although there may be some difficulty in administering food owing to the tenderness of the gums. And it is fortunate that the relish for food is so well preserved since when antiscorbutic articles of food are given the large quantities which the child is willing to take materially hasten the cure. It will be noticed that the parts attacked by the disorder are those which are in a state of great functional activity at the time of life when scurvy appears—the epiphyseal region of the long bones and the gums in the neighbourhood of the recently cut teeth. There are two other positions in which bone lesions have been observed in a few cases. The ribs near the costo-chondral junction may be affected and there may be separation of the ribs from the cartilages. In a case mentioned by Barlow "the sternum, with the accompanying cartilages, seemed to have sunk bodily back as though it had been subjected to some violence which had fractured several ribs in front and driven them back." Another exceptional position is the cerebral dura mater, where large hæmatomata have been described by Sutherland[4] and others.

Morbid anatomy of the bone lesions.—If a vertical section is made through the femur in a well-marked case the following conditions are observed. 1. Hæmorrhage beneath the periosteum, raising it and leaving the shaft bare, sometimes over its whole extent. If the periosteum is examined microscopically it is found to be thickened and broken up by numerous hæmorrhages. There are, however, few signs of inflammation. As a rule no new bone is formed on this elevated periosteum and in the rare cases in which such formation occurs the new bone is soft and small in amount and the shaft rarely, if ever, necroses, as in cases of infective periostitis. 2. Although necrosis is not to be feared the nutrition of the shaft is interfered with and fractures are frequent. These are usually seen at the epiphyseal junction or a little way from it. Crepitus is *soft*, partly from the effused blood-clot. When fracture occurs at the lower end of the femur blood may fill the knee-joint. 3. There are changes in the internal structure of the bone—rapid rarefaction of the cancellous tissue of the bone and hæmorrhages into the centre of the shaft.

Diagnosis.—When the condition is well developed the diagnosis is usually easy, particularly when the gums are spongy, but in the early stage or in slight cases it is often difficult. But if there is any bone tenderness which cannot be accounted for it is always wise to anticipate any possible scorbutic developments by giving fresh, unsophisticated milk and some suitable vegetable food. The conditions with which it is most likely to be confounded are: 1. Periostitis. In scurvy the temperature is rarely high, 100° or 101° F. being usually the highest, and often it may be normal or subnormal. The pyrexia in periostitis in young children is usually severe. In many cases the spongy gums or the presence of similar swellings on other bones will make the diagnosis clear. 2. Syphilitic epiphysitis. Although the state of the limbs in the two conditions is often similar they attack children at different ages, the syphilitic cases being nearly always under six months of age, while scurvy is almost invariably met with after that age. Further, the nutrition of the syphilitic cases is usually poor, while the scorbutic cases are nearly always well supplied with fat. 3. Paraplegia or infantile paralysis. This is suggested by the immobility of the limbs as well as by the extremely soft and atonic condition of the muscles. As most of the children are rickety there is often a curvature in the dorso-lumbar region of the spine which may be mistaken for caries and so suggest that the child's refusal to move the limbs is due to pressure on the cord. The bone tenderness, the spongy gums, and other signs of scurvy quickly enable any paralytic cause to be set aside. 4. Ordinary ulcerative stomatitis. In scurvy the changes are confined to the gums and are not found on the tongue and cheeks, as in ulcerative stomatitis.

Treatment.—This consists solely in rectification of the diet. Fresh, unboiled milk must be given instead of sterilised milk, all desiccated infants' food must be given up, and fresh vegetable or animal food must be given. Owing to the good appetite of most of the patients it is usually easy to get them to take large quantities of food. In addition to fresh milk and cream, potato soup may be given. This may be made by cooking a small potato in its jacket, sieving it, and then pouring over it a breakfast-cupful of boiling milk and adding a little sugar if the child likes it sweet. If the child will not take potato soup some broth may be given in which a muslin bag of chopped-up potato, carrot, &c., has been suspended while the broth was being made. Raw meat juice may also be given. Four ounces of steak meat should be scraped or finely minced, placed in a saucer, and just covered with cold water in which a pinch of salt has been dissolved. After standing for half an hour the juice should be expressed through muslin. Orange or lemon juice suitably sweetened should also be given. The limbs should be placed between sand-bags to keep them from being moved or, in the case of the arm, the hand and forearm may be gently bandaged to the side. If the diet be rectified both pain and swelling almost instantly subside and sedatives are rarely required. Any treatment of accompanying rickets may be postponed. As Cheadle points out, cream at such a time is better than cod-liver oil and raw meat juice is better than iron.

So far we have been on firm ground of observation, but when we come to consider the etiology of scurvy we find that there are many gaps in our knowledge and that many of our conclusions must be regarded as provisional only. It is, however, certain that the disease is clinically and pathologically identical with scurvy in adults and that the most important, though probably not the only, factor is the absence of sufficient *fresh* animal or vegetable food from the diet. It may be well briefly to review the evidence of this in the case of adult scurvy which was such a scourge both on land and sea to our forefathers.

1. The most familiar proof is furnished from the history of scurvy occurring on board ship. When ships had been some time at sea and fresh vegetables were not procurable scurvy frequently broke out. The narratives of Columbus and the early explorers frequently tell of ships scarcely able to reach port because there were not enough hands free from scurvy to work the ship. Immediately, however, that they touched land and were able to procure abundance of fresh food even the worst cases quickly recovered. In both merchant ships and in the navy until recent times scurvy was terribly frequent until it was found that the juice of fruits would also prevent the occurrence of scurvy; but from the time that it was made compulsory for lime juice to be carried and for all hands to take a sufficient daily dose of it scurvy soon became a rare disease at sea. No doubt the disappearance of scurvy has been hastened by the employment of steam, so that vessels call at ports at shorter intervals and so do not run short of vegetables and fruit. Modern steamers also now have arrangements for storing large provisions of vegetables and meat in cold chambers.

2. It has been noticed again and again in the case of armies in the field that in winter, unless efficient commissariat arrangements were made for providing fresh vegetables, &c., scurvy would break out, but that the epidemic

---

[4] Brain, 1894, p. 27.

would subside when, on the advent of spring, fresh vegetables were once more procurable Instances of this occurred during the Crusades, and the following instance which occurred in Chitral as lately as 1885 may be quoted It was related by Lieutenant-Colonel H Hamilton, I M S, in the *British Medical Journal* of Oct 25th, 1902. "In the year 1885 I was in medical charge of the 23rd Pioneers in the Hurnai Pass Knowing that no fresh vegetables would be procurable I had arranged that a native dealer should open a shop and get up supplies from India One day a man came to hospital with an obscure swelling of the leg which suggested scurvy and I said, 'You have not been eating vegetables' To this the man replied that there were none to be got, in short, the native dealer had found it so difficult to supply vegetables that he had given up the attempt I then examined some of the sepoys and followers and found in nearly every case that the gums were showing signs of scurvy Looking round the barren hill sides I found a little cruciferous plant This I showed to a native officer who said he knew it well and it was rank poison. I said, 'That may be, but we officers are going to have a spinach made of it and we are going to eat it in the mess to night' On my return to camp the same native officer met me and said he had in the meantime boiled and made into spinach some of the plant and that it was very good. The result of my trial of it was that I had a regimental order published stating that this plant was good to eat and that anyone found with scurvy would be punished During the rest of our stay there, which extended to several months, I sent out two men per company daily to collect herbs, which after inspection by me were cooked for the companies The result of this was that we had no more scurvy'

3 During sieges, when the supply of fresh vegetables and animal food runs short, scurvy usually breaks out, as in the siege of Paris in 1870, where it was very prevalent. "In 1703, during the siege of Thorn in Prussia, by the Swedes, which lasted only five months, 5000 of the garrison, besides a great number of the inhabitants, died of it The besiegers were at the same time quite free from it" (Budd)

4 Scurvy is also frequent in northern latitudes where vegetation disappears during the severe winter and this has caused a heavy death roll among Arctic explorers But as Nansen has shown, the absence of fresh vegetables may be compensated for by taking an abundance of fresh meat The Esquimaux, who are great meat eaters, usually escape, and during his long journey towards the North Pole Nansen made his men eat large quantities of fresh meat and had not a single case of scurvy among members of his expedition Another example showing the efficacy of fresh animal food is give [illegible] zen Land," p 99 [illegible] t Habarova, North [illegible] Russian monks and one lad who acted as their general servant They belonged to the strictest sect of the Russian priesthood and were bound by their vows to abstain altogether from meat This obligation did not apply to the lad who was kept busy and in constant exercise and lived on fresh reindeer meat At the end of the second winter (in May) the Russian peasant traders and Samoyads came back from the Pechora to find all the six priests dead of scurvy and the boy of 12 in perfect health"

5 Land scurvy was endemic in many parts of England a few centuries ago, probably owing to the circumstance that "till the commencement of the sixteenth century no salads, carrots, or other edible roots were grown in England The little of these vegetables that was used before that time was imported from Holland and Flanders and in the reign of Henry VIII Queen Catherine, when she wanted a salad, was obliged to despatch a messenger thither on purpose' (Budd) Potatoes had not been introduced into England at the time when scurvy was prevalent What is true of large masses of population has also been exemplified in individuals, and even in this country cases of scurvy are occasionally met with in adults and older children In the case of the latter it is nearly always found that they are children who dislike fresh vegetables and have been allowed to go without them I remember a woman being admitted into the ward with scurvy when I was a student She lived in a garret and subsisted almost entirely on tea, stale bread, and kippers

In all these cases, however, there has been not only deprivation of fresh food, but the food that they did get was probably greatly deteriorated in quality and this possible factor must be kept in mind It is curious that in cases of starvation due to privation, to disease, or to fasting for public exhibition, scurvy, as Osler has remarked, is practically unknown.

Returning to infantile scurvy we find almost invariably that there has been absence of a sufficiency of fresh milk and in most cases the administration of preparations of milk in which the composition of the milk has undergone some more or less profound alteration The antiscorbutic properties of fresh milk are slight but sufficient. No case has yet been recorded in which a breast fed child developed scurvy (except during epidemics when the mother was herself scorbutic) and it can also be avoided by keeping a child on a sufficiency of fresh cows' milk When the actual feeding of a series of infantile scurvy is investigated two facts are at once evident. (1) that in none of them is the child taking a diet solely of fresh milk and (2) that the great majority are being fed on milk sterilised at high temperatures or on patent foods containing milk which has been desiccated Both these propositions are so well established that I need not detain you by marshalling statistics in their support, merely pointing out that the chief factor in infantile, as in adult scurvy is the absence of sufficient fresh "living" food and that if a proper amount of "living" food is administered scurvy can not only be prevented but, if present, can be cured But there are one or two problems which still await solution in connexion with scurvy and I propose to touch on two of them

1 How does fresh food prevent and cure scurvy? Is it owing to the presence of some definite body or bodies or is it through some property inherent in fresh food which we cannot at present define? The presence of some definite body is the most convenient supposition and it is spoken of as glibly as we speak of the hypothetical ether which is assumed to pervade the universe and there are many considerations which give it support Most antiscorbutic plants are rich in potash and many of them in organic acids as well, as Sir Alfred B Garrod showed half a century ago, and he was inclined to attribute scurvy to the absence of organic salts of potash in the food And this seemed to be confirmed by the observations of Ralfe that in scurvy there was a marked diminution of the alkalinity of the blood But the administration of organic or other salts of potash in cases of scurvy has been without any effect. Nor has research in any other direction for some definite antiscorbutic body at present proved successful and there are one or two considerations which are opposed to the view that there is a single antiscorbutic substance Among these is the observation that some foods lose their antiscorbutic power when cooked, while others are unimpaired The antiscorbutic powers of milk [illegible] destroyed by prolonged boiling [illegible] meat are impaired by cooking, [illegible] effective in scurvy than beef tea is But potatoes and green vegetables seem to lose none of their virtue by being cooked I am afraid that we cannot yet get beyond Barlow's position that "*the problem is biological as well as chemical and that* the further we get from a living food the less is its antiscorbutic power'

2 Are there any positive factors in addition to the negative one which all admit? Many have been suggested and disproved For instance, it was once maintained that congenital syphilis was often an exciting cause This I am confident is erroneous Rickets, again has been held responsible The frequency with which rickets is associated lends support to the view But cases of infantile scurvy *have been recorded in which there was no sign of rickets so* that scurvy is not a manifestation of rickets although probably predisposed to by it The frequency with which rickets is present in scorbutic infants is mainly due to the improper diet in each case But we open a larger and more difficult question when we inquire whether there is not some positive morbific influence in connexion with the food the child has been taking It is probable that there is such a factor, though much less important and less constant than the absence of fresh food, and that this is probably due to the presence of bodies developed by alterations in the composition of the proteids in the milk, the result of predigestion, sterilisation, or desiccation as the case may be That there is such a factor is strongly suggested by the fact that infantile scurvy not infrequently occurs when children have been taking a fair quantity of fresh milk if they are taking at the same time one of the various patent dried foods or if the fresh milk has been pancreatised, and according to Cheadle scurvy is specially liable to develop where the patent foods have been partially predigested during their

manufacture. Out of 23 cases I have had the opportunity of investigating in hospital and private practice 19 were taking some kind of patent food as their staple diet and no fewer than seven of these were taking fresh milk at the time. The other four had been fed on sterilised or "humanised" milk. In Cheadle's "Lectures on the Practice of Medicine"[5] he gives full details of the previous food of 60 cases of scurvy. Of these, 46 were taking various patent foods, mostly "malted," and of these 13 were taking milk, said to be fresh, with the food. Of the remaining 14, three were taking peptonised milk and seven sterilised or "humanised" milk. Cheadle, however, attributes the scurvy not to the direct influence of the dried foods but to the quantity of milk taken being insufficient to act as an antiscorbutic.

It must be admitted that the case is not yet proved, but I may refer to a further suggestive point. Among the cases of scurvy that I have seen there were three in which the condition had been recognised and fresh milk and raw meat-juice added to the diet but in which the patent food which the children had been taking was not stopped. As a result of this partial change of diet there was only slight improvement, but at the end of some days the gums were still spongy, the swellings had not gone down, and the pains were still severe. In each case the only alteration suggested in the treatment was the complete abandoning of preserved food of any kind. The improvement was then as rapid as it usually is in children admitted to hospital and at once placed on a "living" diet. I cannot pretend that we have any knowledge of what poison or poisons could be responsible, but in the case of predigestion of milk it is well known that the process must not be carried on long or toxic bitter substances will be formed, and it is quite a feasible notion that other bodies may be developed from the proteids of the milk by the various modes of preparation which may favour the occurrence of hæmorrhagic lesions. If we turn to adult scurvy we find that where scurvy is epidemic, as in sieges, long voyages, &c., the quality of the provisions obtainable had usually deteriorated—meat having become tainted, flour mouldy, and so forth. And it is probable, I venture to think, that products of decomposition (not necessarily offensive) are subordinate factors, the essential one in both children and adults being the absence of sufficient fresh vegetable and animal food.

ON THE ACTION OF HÆMOLYTIC SERA.

By ROBERT MUIR, M.D., F.R.C.P. EDIN.,

PROFESSOR OF PATHOLOGY, UNIVERSITY OF GLASGOW; PATHOLOGIST TO THE GLASGOW WESTERN INFIRMARY.

It has been abundantly shown by researches within recent years that the destruction of red corpuscles and bacteria by their respective anti-sera takes place according to practically the same laws. The phenomena can, however, be more readily and more exactly studied in the case of hæmolysis, owing to the visible effect produced by the action of the serum; the facts thus ascertained can then be tested in the case of anti-bacterial sera The subject of hæmolytic sera is thus one of great practical importance. It is also one of the highest interest from the biological point of view, exemplifying, as it does, one of the most remarkable reactive powers which the animal body possesses.

It is unnecessary to give a historical survey of the subject, as this has recently been done in several excellent articles.[1] It will be advisable, however, to mention some of the fundamental facts established by the researches of Bordet, Ehrlich and Morgenroth, von Dungern, and others.

If an animal is injected with the red corpuscles of an animal of different species its serum acquires the power of dissolving such corpuscles and on repeated injections this hæmolytic power may attain a very high degree. (When a serum normally possesses a hæmolytic action this property, of course, becomes accentuated by the method indicated) In the hæmolytic action two substances are concerned, one being the comparatively stable substance which gives the serum its special character—the *immune-body* of Ehrlich—and the other being a substance present in normal serum, highly sensitive to heat and other agencies—the *complement* of Ehrlich. As was first shown by von Dungern, the immune-body alone increases in amount during the stages of immunisation, the complement remaining practically unaffected. Accordingly, in testing a hæmolytic serum, its complement is first destroyed by heating at 55° C. and varying amounts of the heated serum are used along with a sufficiency of fresh serum of a normal animal to supply the necessary complement; otherwise the full hæmolytic value of the serum would not be obtained. The term "immune-body" will be used for convenience as indicating the hæmolytic serum deprived of its complement by heating and the term "complement" as indicating the fresh serum of a normal animal. As regards the mechanism of hæmolysis, there are two chief theories—that of Ehrlich and that of Bordet. *According to the first*, the immune-body possesses two chief combining groups, one by which it becomes combined with the red cells—the cytophile group—and another by which it fixes the complement—the complementophile group; hence, Ehrlich has called the immune-body an amboceptor. The immune-body has, however, little or no affinity for complement until it has become attached to the red corpuscle. According to Bordet the immune-body sensitises or has a mordant-like action on the red corpuscles whereby they become susceptible to the action of complement (hence he uses the term "*substance sensibilisatrice*") and complement (or "alexine," as he calls it) combines directly with the sensitised molecules. The following research was carried out in order to study more closely than had been done the combining relationships of immune-body and of complement, and especially to inquire into the possibility of dissociating these substances, singly or together after they had combined. When I commenced my experiments there was practically nothing in literature on the latter subject, although certain results have since been published. The sera used in most of the experiments have been those of rabbits, immunised against the red corpuscles of the ox. The normal serum of the guinea pig has a distinct though slight hæmolytic action on the corpuscles of the ox owing to the presence of what we may call a natural immune-body (the *Zwischenkorper* of Ehrlich). This has little effect in the case of a single dose of complement but comes to be of importance when comparatively large amounts are employed. I have accordingly in all cases before using the complement placed the serum in contact with corpuscles of the ox at 0° C. for an hour, by which means all the natural immune-body becomes attached to the red corpuscles, while the complement remains in the serum, which is then separated again by centrifugalisation. I have used the corpuscles of 0 5 cubic centimetre of ox's blood (freed from serum) for each cubic centimetre of guinea-pig's serum and have found that 1·5 cubic centimetres of the serum thus treated have practically no effect on the test amount of the corpuscles of the ox In testing the value of immune body and complement I have used the methods of Ehrlich and von Dungern, the test amount of red corpuscles being one cubic centimetre of a 5 per cent. suspension of the corpuscles of the ox in 0·8 per cent. solution of chloride of sodium, the corpuscles being always freed from serum by repeated centrifugalisation and washing in salt solution.

Ehrlich and Morgenroth showed that red blood corpuscles might in certain instances take up many times the minimum hæmolytic dose of immune-body. This is of fundamental importance and, in fact, constitutes the basis of most of the experiments to be described. The immune body combines with certain molecules or receptors in the red corpuscles of the species of animal used; whether this is a true chemical combination or not need not be discussed at present. It will be convenient to use the letter R. as indicating the receptors which will take up the minimum hæmolytic dose (M. H D) of immune-body (I. B); thus when two hæmolytic doses of the latter are taken up the combination will be represented by 2 R. + 2 I B. I shall use the letter C. to represent complement; complete hæmolysis with minimum doses may then be conveniently represented by R. + I. B. + C

Before speaking of the separation of immune-body after combination it will be convenient to refer to some facts regarding the union of immune-body and red corpuscles. This union, as Ehrlich and Morgenroth showed in their first communication, takes place at 0° C., and thus a method is afforded for separating immune-body from complement when they are present together in a fluid. (This method, as already indicated, has been utilised for obtaining guinea-pig's serum practically free from natural immune-body and thus devoid of hæmolytic action on ox's corpuscles.) The amount of immune-body taken up by red corpuscles is usually tested in the following way. A number of tubes, each containing one cubic centimetre of 5 per cent. suspension of ox's corpuscles, are prepared and to these increasing multiples of the hæmolytic dose of immune-body are added in series—i.e., two doses, three doses, &c. *The tubes are then placed in the incubator for two hours at* 37° C., the contents being shaken well from time to time so as to allow time for complete combination. All the tubes are then centrifugalised and the contents of each are added to a fresh tube containing one cubic centimetre of suspension of red corpuscles, along with sufficient complement for hæmolysis. In this way we ascertain the smallest number of doses of immune-body which give a free dose of immune-body uncombined after the above treatment. In the case of rabbit's immune-serum I have found that the number of doses taken up by ox's corpuscles varies from six to ten; it is usually seven or eight (variation seems to depend both upon the serum in question and also upon the corpuscles used in testing). But it is to be noted that the union of immune-body and red corpuscles is not like ordinary chemical union, say of an acid and a base. If, for example, eight hæmolytic doses of immune-body are the smallest amount which gives one free hæmolytic dose we do not find that all the immune-body in the tube containing seven doses has been taken up; on the contrary, in this tube there may be almost a dose free, in the six-dose tube a *considerable amount, in the five-dose tube a trace, &c.* And evidence is brought forward below, that when there is a great excess *of immune-body present more is taken up than the* maximum brought out by this method of testing. It is therefore evident that the amount of immune-body taken up varies to a certain extent with the amount present.

---

[5] Smith,

[1] I may mention Aschoff [illegible] Jena, 1902; Sachs · Die Haemolysin [illegible] sch and Oestertag's Ergebnisse der Al [illegible] Recent Views on Immunity, Journal of Hygiene, 1902; Welch's Huxley Lecture, THE LANCET, Oct. 11th, 1902 p. 977; and Grunbaum's Goulstonian Lectures, THE LANCET, March 21st, 1903, p. 775, &c.; and von Dungern . Die Antikorper, Jena, 1903.

ON DISSOCIATION OF IMMUNE-BODY FROM RED CORPUSCLES.

In examining the possibility of separating immune-body after combination I took advantage of the fact that the red corpuscles of the ox take up several doses of the immune-body of the rabbit. The method then is to bring red corpuscles saturated with immune-body into contact with untreated corpuscles for a certain length of time and then to observe how much hæmolysis takes place when sufficient complement is added to the mixture. The details are as follows:—

. suspension of ox's corpuscles
une-body from the rabbit, for

corpuscles into contact. This tube is placed in the incubator for an hour. 4 The contents of Tube A are then shaken up and 0 2 cubic
added. At the same
h corpuscles is added
centimetre of comple-
37° C.

The result is that hæmolysis of all the corpuscles takes place in Tube A, whilst in Tube B the added corpuscles remain practically intact. This result has been recently published by Morgenroth,[2] but I may state that I obtained it quite independently and demonstrated the fact to several friends last November. *The only difference in the methods* used is that Morgenroth simply mixed the treated and untreated corpuscles in suspension, whereas I brought them together by centrifugalisation. The transference of immune-body to the untreated corpuscles takes place rather more quickly by the latter method. I have found that red corpuscles treated with 12 hæmolytic doses of immune-body will usually give up two hæmolytic doses to fresh corpuscles after contact for an hour at 37° C.—i.e., two cubic centimetres [illegible] experiment, will [illegible] *of sufficient co*[illegible] immune-body can [illegible] six hæmolytic doses. Dissociation takes place, though much more slowly, at the temperature of the room, while at 0° C. it is practically *nil*.

The explanation of the above result is quite clear and has already been indicated. In Tube A the untreated corpuscles have obtained by dissociation a hæmolytic dose of immune-body and the added complement is distributed over all. In Tube B the complement becomes fixed to the treated corpuscles before sufficient immune-body can pass to the untreated corpuscles; as a matter of fact, immune-body does pass over, but by the time this has occurred all the complement has been fixed. To explain the result in accordance with Ehrlich's theory as to the immune-body being an amboceptor, Morgenroth states that the combination of immune-body and red corpuscle becomes firmer when the former takes up complement—in other words, immune-body *is locked up by complement. If this were not so we would* expect immune-body and complement together to pass over to the untreated corpuscles. He, however, brings forward no direct evidence in support of this statement and, as will be shown below, it is possible to dissociate immune-body even when great excess of complement has been added. Experiments such as the above do not in themselves give any information as to the condition of immune-body after complement has been taken up. The question will be discussed again below.

ON THE CONDITION OF IMMUNE-BODY AFTER HÆMOLYSIS.

Supposing that red corpuscles containing several hæmolytic doses of immune-body are hæmolysed by the minimum amount of complement, we have to inquire in what state the surplus molecules of immune-body are. There may be said to be three possibilities: (1) the surplus molecules of immune-body may be destroyed in the process of hæmolysis; (2) they may become free in the fluid; or (3) they may remain in union with the receptors of the red corpuscles. It is easy to show in the first place that they are not destroyed, as abundant immune-body can be obtained from the red fluid resulting *from the hæmolytic action.*

ment they undergo complete hæmolysis.

As mentioned above, *free* immune-body unites with red corpuscles at 0° C. We may accordingly test whether immune-body is recoverable from the red fluid at this temperature. The steps are the same as in the above experiment, only after hæmolysis has occurred at Stage 2 the tube is placed in a mixture of ice and water, the fresh corpuscles are then added, and the mixture is allowed to remain at 0° C. for an hour. *Afterwards the tube is centrifugalised* and the corpuscles are washed in cold salt solution. Complement is then added to the corpuscles and the tube is placed in the incubator. The result is that there is practically no lysis, though a control with red corpuscles added to fluid containing a dose of immune-body at 0° C. and then centrifugalised, gives complete hæmolysis on the addition of complement.

We may therefore conclude that when red corpuscles containing several doses of immune-body are hæmolysed by the minimum dose of complement, the surplus molecules of immune-body do not become free but remain attached to the receptors of the corpuscles; a certain amount can, however, be dissociated at the higher temperatures on the addition of fresh corpuscles.

ON THE DIRECT UNION OF COMPLEMENT WITH CELLS.

In some preliminary observations on the behaviour of complement I found that it united directly with various animal and vegetable cells, a fact which I afterwards found had been recorded by von Dungern,[3] a considerable time previously. Of such cells may be mentioned those of the various organs *of the same animal as that supplying the complement* or of animals of different species, various bacteria, yeasts, &c. Von Dungern supposes that this combination takes place through the complementophile group of the amboceptors when they are still in position of side-chains in the cells. Whether this is the explanation or not need not be discussed at present; the important point is that molecules with direct affinity for the same complement are very widespread in the animal and vegetable kingdom. It is generally stated that red corpuscles, unlike other cells, have no affinity for complement, and it is the case that no

---

[2] Morgenroth: Münchener Medicinische Wochenschrift, 1903, No. 2.

[3] Von Dungern: Munchener Medicinische Wochenschrift, 1900, No. 20.

[illegible] that complement is not separable (nor I. B. + C.), the saturation with complement should lead to the locking-up of the immune-body molecules so that they can no longer be separated. Various experiments have been carried out in order to test whether this is the case. We may first take the case of red corpuscles which have been saturated with immune-body, the excess of immune-body having been completely removed by repeated centrifugalisation and washing. Suppose that the number of hæmolytic doses taken up is nine, then complete saturation will be represented by 9 R. + 9 I. B. + 9 C. If then we add another dose of C. we would expect to get free complement but no immune-body. This, however, is not the case. The following may be taken as an example.

1. Four tubes, A, B, C, D, each containing one cubic centimetre suspension of red corpuscles, are taken, and to each more than sufficient I. B. is added to saturate the corpuscles completely. The tubes are placed in the incubator for one and a half hours at 37° C. and then allowed to remain at the room temperature for another half hour. 2. They are then centrifugalised and washed with fresh salt solution, the process being repeated several times. 3. Complement is added—to A, 0·015 cubic centimetre; to B, 0·06 cubic centimetre; to C, 0·1 cubic centimetre; and to D, 0·2 cubic centimetre (M. H. D. of C. is 0·013 cubic centimetre). The tubes are placed in the incubator for two hours. Complete hæmolysis of course occurs in all. 4. One cubic centimetre of ·5 per cent. suspension of untreated red corpuscles is added to each and the tubes are placed in the incubator again for another hour.

The result is that the added corpuscles dissolve completely in D, while they remain intact in A, B, and C (there is possibly the slightest trace of hæmolysis in C). The corpuscles in the tubes A, B, and C are centrifugalised and washed in salt solution; 0·03 cubic centimetre of complement is added to each tube and the tubes are placed in the incubator. Complete hæmolysis then occurs in each tube. The explanation of this result manifestly is that in all the tubes sufficient immune-body was dissociated for complete hæmolysis, but that only in tube D was there a hæmolytic dose of free complement.

Objection might be made to using red corpuscles *saturated* with immune-body as some of the molecules might not have taken up complement. I have therefore compared the amounts of immune-body which can be dissociated from red corpuscles containing various doses of immune-body (1) before complement is added and (2) after complement is added. The following are the details. Nine tubes, each containing 0·5 cubic centimetre of 5 per cent. suspension of red corpuscles: to the first, two doses of immune-body are added; to the second, three doses; to the third, four doses; and so on up to ten doses. Two series of tubes, A and B, are thus prepared. If we take the 7 D. tube as an example, then in series A we have to find how much I. B. can be dissociated from 7 (R + I. B) and in Series B from 7 (R + I. B. + C.) + free C. Time is allowed for combination of immune-body and the corpuscles in each tube are then repeatedly centrifugalised and washed in salt solution. All the immune-body present is therefore in combination.

Series A.—To each tube after being treated as above is added 0·5 cubic centimetre of fresh corpuscles (5 per cent.). the tubes are shaken thoroughly, and then centrifugalised so as to bring the treated and untreated corpuscles into contact They are then placed in the incubator for an hour at 37° C. so as to allow dissociation to occur. The contents are then thoroughly shaken up and to each tube is added four hæmolytic doses of complement. The tubes are then placed in the incubator for an hour at 37° C. and the result is observed next day.

Series B.—To each tube complement is added in excess—i.e., much more than will be taken up by the treated corpuscles. To the tube with two doses of I. B., 0·2 cubic centimetre of C.; with three doses of I. B., 0·3 cubic centimetre of C.; and so on in increasing amount. The tubes are placed in the incubator for two hours so as to allow the maximum amount of complement to be taken up. To each tube is then added 0·5 cubic centimetre of untreated red corpuscles (5 per cent. suspension) and the tubes are placed in the incubator for another hour (During this time immune-body which can pass from the treated to the untreated corpuscles will do so, and, as there is plenty of free complement present, the latter will become hæmolysed in proportion to the amount of immune-body dissociated.) The tubes are placed in a cool chamber and the result is noted on the next day.

The following are the results obtained. The amount of hæmolysis of the added corpuscles in the two series practically corresponds. In the tubes containing originally from ten down to six doses (10 to 6 D.) of I. B. the added corpuscles have undergone complete lysis; in the tubes containing 5 D. almost complete lysis; in the tubes containing 4 D. distinct lysis; in the tubes containing 3 D. very slight lysis; and in the tubes containing 2 D. no appreciable lysis. It may therefore be concluded that from corpuscles combined with immune-body practically as much immune-body can be dissociated after complete saturation with complement as before any complement has been added.

We may also compare the amount of immune-body dissociated from red corpuscles containing multiple doses of immune-body under the two conditions: (*a*) when just enough complement to produce hæmolysis has been added and (*b*) after complete saturation with complement. If we take again the case where seven doses of immune-body have been added, then the two conditions to be compared may be represented as (*a*) (R + I. B. + C.) + 6 (R. + I. B.) and (*b*) 7 (R. + I. B. + C.) + free C. In both cases there is, of course, complete hæmolysis, but in the former case most of the I. B. is simply attached to the receptors of the red corpuscles, whereas in the latter all the affinities for complement have presumably been satisfied. The following are the details:—

Two series of nine tubes, each containing 0·5 cubic centimetre of red corpuscles, are prepared as before, and to the several tubes 2 D, 3 D., up to 10 D. of I.B. are added. Time is allowed for combination of I. B. and the corpuscles are centrifugalised and washed several times.

Series A.—Hæmolysis is produced by 0·03 cubic centimetre of complement, and after the tubes have been an hour in the incubator (and complete hæmolysis has occurred) there is added 0·5 cubic centimetre of red corpuscles (5 per cent.) to each tube. The tubes are then placed in the incubator for an hour to allow of dissociation of I. B. We then add sufficient complement—say, 0·2 cubic centimetre—which will produce hæmolysis in the added corpuscles, according to the amount of I. B. which they have taken up. The tubes are placed in the incubator for an hour at 37° C. and the result is observed next day.

Series B.—As in the previous experiment (*vide supra*, Series B) much more complement is added than the treated corpuscles will take up and an exposure for two hours at 37° C is allowed for combination. To each tube the standard amount of red corpuscles is added and the tubes are placed in the incubator for an hour, &c.

The result is that here also there is no perceptible difference between the two series. In the tubes from 8 D. to 10 D. there is complete lysis of the added corpuscles, in tube 7 D. almost complete lysis, in tube 6 D. much lysis, in tube 5 D. distinct lysis, in tube 4 D. a mere trace, and in tube 3 D. no perceptible lysis. In another experiment of the same kind one or two of the tubes in Series A showed slightly more lysis than in Series B but the difference was of quite a trifling nature. Here, again, the experiments described supply no indication of the locking up of the molecules of immune-body by the complement molecules. (It will be noted that in all these comparative experiments the time allowed for dissociation of I. B. and for its combination with the added corpuscles is one hour at 37° C. and subsequently about 15 hours at cool room temperature.)

Although, as stated above, I have found no evidence that the combination I. B. + C. ever becomes dissociated the objection might be made that in the experiments just described this may possibly occur. This objection can, however, be met by showing in a direct manner that the I. B. separates alone—i.e., without complement attached to it. The method is to super-saturate with complement a given amount of red corpuscles combined with immune body, then to remove the excess of complement present, and then to add fresh corpuscles and observe whether I. B. or I. B. + C. becomes dissociated. Bordet showed that an emulsion of a given bacterium, along with the corresponding anti-serum, can take up considerable quantities of hæmolytic complement, and for this purpose I have used the spirillum Mechnikovi along with its immune-body (heated homologous serum). The following are the details of such an experiment:—

1. Two cubic centimetres of 5 per cent. suspension of ox's corpuscles are saturated with I. B. and the corpuscles are then centrifugalised and washed several times so as to remove all free I. B. 2. 1·5 cubic centimetres of guinea-pig's complement are added and the mixture is placed in the incubator for two hours so as to allow complete combination of complement (hæmolysis of course occurs). 3. The red fluid is divided into two equal parts—A and B. 4. To A is added one cubic centimetre of red corpuscles treated previously with I. B. and the mixture is placed in the incubator. The result is complete hæmolysis. Therefore free C. is present in the fluid at [illegible] 5. To B is added 0·3 cubic centimetre of a fairly thick [illegible] spirillum and 0·2 cubic centimetre of th[illegible] mixture is placed in the incubator for an [illegible] remove free complement.) 6. One cubic [illegible] untreated red corpuscles is added to the fluid and allowed to [illegible] for an hour. The red corpuscles remain intact, therefore the free C. has been removed. 7. The corpuscles are then separated by centrifugalising and washed in salt solution and 0·1 cubic centimetre of complement is added. The result is that complete hæmolysis occurs. This shows that the fresh corpuscles obtained I. B. *alone*, otherwise they would have dissolved at Stage 6.

I have repeated this experiment with corpuscles combined with five doses of immune-body instead of being saturated. In this case the fresh corpuscles added at Stage 6 obtain almost a complete hæmolytic dose of immune-body. It is thus completely proved that the immune-body dissociated after complete saturation with complement comes off as I. B. alone and not in the combination I. B. + C.

Before considering the significance of the results obtained, it may be well to recapitulate the chief facts brought forward. These are: (1) each additional dose of immune-body *taken up by the red corpuscles leads to the taking up* of an additional and corresponding amount of complement (we may therefore infer that when red corpuscles containing 5 D. of I. B. are exposed to excess of complement, the I. B. molecules would really, according to Ehrlich's theory, become saturated with complement); (2) when such saturation has occurred I. B is still separable; and (3) the I. B. is separated without C attached to it.

The question is, what has become of the C. which was taken up through the medium of the I. B.? The natural assumption is that it has become united *directly* to the molecules of the red corpuscles. Certain other points will require to be settled before this is definitely affirmed, but it must be admitted that the above results—all of which have been confirmed—are opposed to Ehrlich's view as to the immune-body being a connecting link between complement and tissue molecules. The undoubted fact is that two substances in combination (tissue molecules + immune-body) take up an amount of complement which neither by itself will take up, and so far as I can see the above results cannot be reconciled with the view that complement becomes united to a complementophile group of the immune-body. Nevertheless I am fully aware that many other points will require to be cleared up before we gain a final conclusion regarding the relationships of these substances. It will, for example, have to be considered whether the facts brought forward by Neisser and Wechsberg[7] as to excess of immune-body interfering with the bactericidal action of complement can only be explained on the supposition that immune-body unites directly with complement.

SUMMARY OF CHIEF RESULTS.

1. Immune-body and complement differ markedly from each other in their mode of combination and in the firmness of union.
2. Immune-body can be in part separated before hæmolysis from red corpuscles containing multiple doses.
3. When red corpuscles containing multiple doses of immune-body are hæmolysed by the minimum dose of complement the surplus molecules of immune-body remain attached to the receptors of the red corpuscles and can be in part separated.
4. Complement after its union either directly with cells or indirectly through the medium of an immune-body cannot be separated again.
5. Each dose of immune-body taken up by red corpuscles in addition to the minimum hæmolytic dose leads to the taking up of an additional and corresponding amount of complement. In this way many times the amount of complement necessary for hæmolysis may be used up.
6. When red corpuscles containing multiple doses of immune-body are fully saturated with complement, immune-body can still be separated. The immune-body thus obtained comes off alone and not in the combination I. B. + C.

A portion of the work was done in the Pathological Department of the University of Oxford and I have pleasure in expressing my indebtedness and thanks to Dr. J. Ritchie for the excellent facilities there afforded me.

Glasgow.

---

[7] Neisser and Wechsberg: Münchener Medicinische Wochenschrift, 1901, No. 18.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

BY J. S. MACKINTOSH, M.R.C.S. ENG., L.R.C.P. LOND.

THE Rev. ——, aged 34 years, when engaged one morning in making arrangements for a "treat" in connexion with his parish had occasion to make some short journeys on his bicycle to expedite matters. After the last of these bicycle runs he went up to his bedroom and was found not long after by his maid dead on the floor, with a wound in the head behind and a little above the ear, and a revolver on the floor beside him. The wound in the head was clearly self-inflicted. From the maid I learnt that the revolver was kept in the collar-and-cuff drawer (a point of importance in the case) as a protection from burglars. His wife was away for the night, having gone on a visit to her father on the previous day—a frequent occurrence. She was expected back every moment. The maid had not noticed any change *that day in her master's demeanour, he seemed in* excellent spirits, and she could not account in any way for her master taking his life. On proceeding with my examination I observed that a large piece of skin had been torn from the hypothenar eminence of the right hand as though by a fall. Being already aware that the deceased had been riding a bicycle that morning it occurred to me that he might have had an accident and seeking for confirmation I found hanging over the end of the bed a clergyman's cycling suit covered with mud all down the right side, a hole being torn in the knee. Correspondingly I found a large abrasion over the patella and a slight bruise on the right frontal region. It now became plain that the unfortunate man had had a bad fall from his bicycle, had gone home to change his clothes, and that during the process he had gone to his drawer, taken out the revolver, loaded it (for it was always kept unloaded and the box of cartridges was by his side), and shot himself.

Further examination showed that his toilette was complete except for his collar and cuffs. It was therefore a legitimate inference that he had gone to the drawer not for the revolver but for his linen, and that had the weapon been kept elsewhere the tragedy would in all probability not have occurred. The evidence given at the inquest and the result of my own inquiries both went to show that there was no reason discoverable that could have prompted him to contemplate self-destruction. His married life was most happy, his relations with his vicar were most cordial, and his finances were in order. He had no particular worries or troubles, as far as his friends and relatives knew; at no time had he shown a tendency to fits of depression; his family history was unsuggestive and no written word was left that could hint any reason for the act or even express intention. A witness of the fall was discovered. He saw the bicycle skid and the rider fall heavily on his right side, apparently striking his head. He tried to remount but, according to the witness, seemed unable to get into the saddle and desisting in the attempt proceeded to push his bicycle homewards.

From the foregoing facts I felt justified in drawing the following conclusions which I presented to the court in my evidence at the inquest. The effect of the fall was to induce that form of cerebral concussion which permits the sufferer to perform various complex and apparently reasoned acts of which he will retain no recollection when he has recovered from the effects of his concussion and which may be quite at variance with his usual behaviour, the mental condition being identical with that of the somnambulist, of the epileptic shortly after a fit, and of a certain phase of the hypnotic state. It was clear that the act was performed absolutely without premeditation from the evidence already given and from the fact that it was not until he had put on all but his collar and cuffs and had to go to the drawer where they were kept that he came across the revolver and made use of it. The sight of the revolver, its image impinging on the retina, started the ideo-motor sequence which ended in his loading the weapon, placing it to his head, and pulling the trigger, the act being automatic and not voluntary even as a sudden impulse, the deceased not being in reality conscious at the time.

Dr. J. F. Woodroffe of Harlesden, who had known the deceased for some years and had treated him professionally, gave evidence in support of my conclusions. He had arrived on the scene later in the morning after I had left and on examination and inquiry come to practically the same views quite independently of suggestions on my part. The coroner's court accepted the aspect of the case as presented by the medical witnesses and brought in a verdict in accordance therewith.

One question remains to be answered, Why on finding the pistol before him did he load it and put it to his own head? To find the reply the experienced psychologist will ask whether anything had come recently within the range of the mental experience of the deceased to suggest the act? There was this. Earlier in the week a report appeared in the papers of a clergyman shooting himself through the head in a similar manner. Though the deceased made no comment on it to his wife or to anyone it is improbable that it escaped his notice and, being in holy orders himself, he would not fail to be impressed by it. The record of an impression of this kind would complete the chain of inference. As it is we must be content with a surmise only, but a justifiable surmise. I would submit that a case of this kind is carefully to be distinguished from those sudden impulses which induce a man to throw himself from a high building or to jump into the water. In this form of self-destruction the restraining impulse from the "conscious" area of the cortex is overcome just as an incompetent driver is overcome by an ill-broken horse. In the present case there is no question of incompetence to restrain an impulse. The driver is absent, the horse is a runaway, and follows to the end a path down which its driver once led it for a short distance, merely intending to view the course taken by another to destruction.

Hampstead.

A RARE CASE OF INTESTINAL OBSTRUCTION RESULTING FROM A KICK IN THE RIGHT ILIAC REGION.

By GILBERT KEMPE, M.D. DURH.,
HONORARY SURGEON TO THE SALISBURY INFIRMARY;

AND

E. KEMPSON BROWN, M.R.C.S. ENG., L.R.C.P. LOND.

A STABLE-LAD, aged 17 years, was kicked in the abdomen by a horse on Oct. 8th, 1902. Three hours later Mr. Brown was called to see him. Mr. Brown gives the history of the case as follows.

I found him lying on his back with his knees drawn up, obviously in great pain and in a collapsed condition. Physical examination revealed superficial bruising in the right iliac region extending to the umbilicus. Both recti muscles were rigid and there was tenderness on palpation over the seat of the injury but no dulness to percussion. In the left iliac region there was a patch of dulness of the size of the hand. Respiration was quick and shallow and the temperature was 96·5° F. Inquiry into his previous history gave evidence of an attack of enteric fever two years previously. A catheter was passed and four ounces of normal urine were withdrawn. The patient was put to bed in a cottage, it being thought too risky to remove him immediately to a hospital. Hot fomentations were applied to his abdomen. Four hours later there were more pain and more abdominal distension. The patient was so restless that one-eighth of a grain of sulphate of morphia was given hypodermically. During the following night there was some vomiting, the vomitus being gastric. On Oct. 9th the patient's temperature was 101°, his pulse was 100, and respirations were 24 per minute. The abdomen did not move with respiration and was hyperæsthetic and markedly rigid. The vomiting had ceased but the bowels had not been opened. The patient was very restless all day and at night another dose of morphia was given. No more morphia was given, but for four days the bowels were not moved. On the 12th one-sixtieth of a grain of sulphate of strychnine was given hypodermically and the bowels acted freely and continued to do so for some days. On the seventh day (the 15th) the abdomen was only tender over the injured region, where there were some resistance on pressure and comparative dulness on percussion. The left-sided dulness had disappeared. Meteorism was present and at the end of the first week became very distressing, displacing the thoracic viscera, the heart's apex being in the third interspace internal to the nipple. Strychnine was again given with the result that the bowels were freely relieved, the meteorism was much lessened, and the apex beat came down into the fourth interspace. The patient was able to take and to retain nourishment. His general condition remained fairly satisfactory up to the sixteenth day after the accident. The temperature ranged from 99° to 101° and the meteorism was a troublesome symptom. After this the bowels became less and less active and the meteorism consequently increased. Strychnine failed to relieve these symptoms and purges produced only slight actions of the bowels. The temperature took a higher range (101° to 103°). The symptoms now became progressively worse, meteorism was intense, and the bowels became absolutely obstructed even to the passage of flatus. Vomiting set in. Immediate operation being considered imperative I called in my colleague Dr. Kempe of Salisbury. He concurred as to the necessity of operating and when the boy was anæsthetised a median incision below the umbilicus was made and the abdomen was opened. A hurried examination of the contents showed recent general plastic peritonitis, the coils of intestine being firmly bound together and to the parietes with white lymph, especially in the pelvis and right iliac region. There was no free fluid or any collection of pus. The lad's condition being extremely bad it was decided to relieve him temporarily by an enterotomy. Accordingly a distended piece of gut was opened and a Paul's tube was inserted. A large quantity of gas and liquid fæcal matter was discharged. After the operation the patient was manifestly better, the abdomen became flat instead of barrel-shaped, and the apex beat came down into the fourth interspace. The temperature never rose above 99° and there was free discharge of liquid fæces through the enterotomy wound, from which the tube was removed on the third day. For the first four days the patient was fed upon peptonised milk by the mouth and by peptonised nutrient enemata. The latter were not retained after the third day and were discontinued, soft solid food being then well borne. On the eleventh day after the operation the patient was removed to the Salisbury Infirmary under the care of Dr. Kempe with a view to further operation.

On Nov. 8th, the day after his admission to the Salisbury Infirmary, his condition was as follows. The patient was pale and very thin but felt comfortable and had no pain except from the excoriated skin around the fæcal fistula. Just below the umbilicus for about two inches was a granulating wound, in the centre of which was a fæcal fistula. The skin around was excoriated and raw. Nothing abnormal was felt in the abdomen which was flat, soft, and not tender. From the fistula came an almost constant discharge of liquid fæcal matter mixed with the undigested remnants of food and at times a flow of almost pure bile. In order to prepare him for a further operation to relieve the obstruction and to restore the continuity of the gut he was given a liberal diet by the mouth and at the same time nutrient enemata of peptonised milk and beef-tea were given every four hours. Many methods were tried to improve the skin around the fistula, but all methods of covering and protection had to be given up in favour of constant self-cleansing by the patient himself; he was provided with cotton-wool mops with which he wiped away all discharge at once, with the result that the skin rapidly improved. On Nov. 11th he had two evacuations per rectum, pale in colour and very offensive, which apparently consisted of the remains of the nutrient enemata and perhaps some fæcal matter which had been lying in the colon since before the first operation. On the 15th and 16th he seemed to have some obstruction above the fæcal fistula as this did not discharge; there was also some sickness and the upper abdomen became distended. Four grains of calomel overcame this and an enema was given per rectum but without result. On the 19th a similar attack occurred which lasted 36 hours but was relieved by an injection of plain sterilised water into the fæcal fistula. No other attack occurred and on Dec. 1st the lad was fatter and in better condition altogether. It was therefore decided to attempt to close the fistula and to relieve the obstruction, or, failing this, to anastomose the small intestine with the ascending colon. On the 4th the patient was anæsthetised and after the fæcal fistula had been closed by suturing its edges together the skin of the abdomen was thoroughly cleaned. An elliptical incision was then made around the fistula The incision was carried through the muscular and other layers into the peritoneal cavity. The portion of intestine and abdominal wall involved in the incision could now be lifted up. The distal portion of gut was followed down until it became involved in a dense mass of adhesions in the right iliac fossa. These were broken down with much difficulty and the small bowel was freed. An oblique scar-like ridge could be felt in the parietal peritoneum in the right iliac region. A portion of the sigmoid flexure was also involved in the adherent mass and this was freed and the bowel was traced from the fæcal fistula to the upper rectum. The bowel involved in the fæcal fistula presented the characteristics of the jejunum. The bowel above and below was clamped and excised and end-to-end union was effected by one of Stanmore Bishop's bobbins and two rows of fine silk sutures. The abdomen was cleaned and the abdominal wound was sutured with silkworm-gut. After the operation the patient became greatly collapsed and restless. A pint of normal saline solution was given per rectum and one-fiftieth of a grain of strychnine every two hours hypodermically. In the evening, as there had been no sickness, one grain of calomel every hour until four grains had been given was ordered, as it was thought advisable to excite peristalsis as soon as possible. Sips of soda-water and milk to the extent of half an ounce per hour were also allowed. On the next day (the 5th) he was fairly comfortable but looked very pale and pinched; his temperature was subnormal (98°) and his pulse (120) was very small and soft. There was slight abdominal pain. In the afternoon an enema of soap-and-water and turpentine was given, but with no result. Nutrient enemata were ordered every four hours. In the evening, about 7 o'clock, he vomited, bringing up a large quantity of curded milk (apparently all he had taken during the day); the milk was therefore stopped and sips of champagne, soda-water, and barley-water were substituted. At this time his temperature was still a little subnormal and the pulse was 120. The bowels had not acted and the nutrients were well retained. There was no abdominal distension. On the 6th his general condition was worse and he was lying low in the bed with drawn face and quite listless, the tongue was dry and brown, the pulse ranged from 130 to 140, and the temperature was 97°. Oral feeding was again tried and a small quantity of diluted milk resulted in the vomiting of about half a pint of bile-stained material. This kind of material was frequently vomited during the day. The abdomen was flat. There was no action of the bowels in spite of repeated enemata. Panopepton and champagne were tried by the mouth, but the second dose was vomited. He went gradually downhill until the 9th (five days after the operation). He had been repeatedly sick, the vomit being gastric and bilious. There had been no action of the bowels in spite of repeated evacuating enemata. On the 9th he appeared to be moribund. He was constantly vomiting brown bilious material, was listless and lying low in bed, and his surface and extremities were cold, shrunken, and bedewed with sweat. It was evident that effective peristalsis had not been set up and this was probably owing to the muscular coats not recovering from the inhibition brought about by the injury incurred by the visceral peritoneum during the separation of adhesions. The abdominal wound was therefore rapidly opened up, the presenting piece of small intestine was incised, and a Paul's tube was inserted No gas or fæces escaped. The intestine was flaccid and there were no signs of peritonitis. On the 10th there had been no discharge from the newly made fistula. He was vomiting constantly and looked likely to die at any time. In the evening the Paul's tube was removed and 15 ounces of warm water were injected into the proximal side of the fistula. Part of this returned and with it some very foul fæcal material. On the 11th the fistula was discharging well, vomiting was infrequent, and food by the mouth was being retained. By the 16th he was taking food freely, although there had been slight sickness from time to time. Between Dec. 16th and Feb. 16th, 1903, the patient continued to gain ground and put on flesh rapidly. He was fed liberally by the mouth and in addition was given nutrient enemata of increasing size until at the end of this time he was receiving from 18 to 20 ounces every eight hours, retaining and absorbing them, since very little waste came away with the morning wash out. Two small abscesses formed during this period, one behind the left ear and one over the left great trochanter. Both healed readily. On Feb. 16th he was brought up for his fourth operation, fat and well, and looking forward with keen interest to the prospect of recovery. An incision was made from the right side of the fistula outwards towards the lumbar region and carried down to the peritoneum. A finger was introduced and the loop of bowel forming the fæcal fistula was carefully separated and drawn outside the abdomen. The gut was clamped on either side about two inches away from the fistula. The loop of intestine between the clamps was then excised. The end of the distal portion was sutured, invaginated, and returned to the abdominal cavity. The end of the proximal portion was implanted into the ascending colon by the aid of a Murphy's button. Two rows of sutures were inserted round the button and a gauze drain in a split rubber tube was placed leading down to the anastomosis. The T-shaped wound was sutured with salmon-gut. The lad recovered well from the operation and had no bad symptoms. On the third day after the operation the bowels moved normally without any aperient and have moved daily since. The wound suppurated slightly, which was not to be wondered at considering the state of the abdomen, and the lad with a grin presented Dr. Kempe with the button on Feb. 23rd. The motions are slightly undigested but otherwise normal and the boy is rapidly gaining health and strength and also putting on flesh.

Remarks by Mr. BROWN.—From the standpoint of the physician I think this case is interesting from the following points. The marked dislocation of the apex beat, which was due obviously to the distension of the stomach and intestines, and which, although it was pushed up into the third interspace, was nevertheless half an inch internal to the nipple. The benefit obtained by the use of strychnine in the paralytic distension of the gut was most obvious and, on the other hand, the uselessness of intestinal disinfectants—i.e., salol, turpentine, &c.—to relieve the meteorism was also demonstrated. A comparatively low temperature with such an extensive inflammation was noteworthy and any large rise seemed to be clearly due to toxic absorption from the lumen of the intestine. The absence of suppuration was remarkable, since with the lowered vitality of the intestine it was only too likely that migration of organisms would take place.

Remarks by Dr. KEMPE.—This case seems to have been one in which a hæmorrhage into the abdominal cavity was succeeded by plastic peritonitis and intestinal obstruction. There was no evidence of any perforation of the hollow viscera and *the source of the bleeding would seem to have* been the parietal peritoneum in the right iliac region where a scar was found at the second operation. The value of enterotomy as a life-saving operation was amply demonstrated on two occasions. In each case the opening was made in the jejunum and yet the lad improved in condition and put on flesh with combined oral and rectal feeding. After the failure of the second operation the interest lies chiefly in the large amount of nutriment which was received and absorbed per rectum. As much as three pints of peptonised milk and beef-tea per diem were given in this way. For this I have to thank Sister Bartlett who was in charge and who carried out my instructions in the spirit as well as in the letter. Every care was taken not to overtax the forbearance of the rectum and lower colon and the final result was only obtained by careful training of these parts to do the work required of them. I would thank Dr. D. Ferrier, late house surgeon at the Salisbury Infirmary, *for his careful notes from which this* relation has been drawn. The successful results of combined oral and rectal feeding and the healthy character of the stools (which are almost completely digested) now lead me to believe that the lad's nutrition will improve, which [illegible]e in many recorded [illegible]l gut has been put out [illegible]

Note.—Since writing the above the patient has continuously improved and is now (August, 1903) *doing all* his ordinary work—viz., attending to his horses and riding at exercise every day. At first he gained weight too quickly, but now his weight is normal to him and he finds absolutely no inconvenience.

RESULTS OBTAINED AT MUNDESLEY SANATORIUM IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

BY F. W. BURTON-FANNING, M.D. CANTAB.,
PHYSICIAN TO THE NORFOLK AND NORWICH HOSPITAL;
AND
W. J. FANNING, M.R.C.S. ENG., L.R.C.P. LOND.,
RESIDENT MEDICAL OFFICER, KELLING SANATORIUM.

IT is now one year since we handed over the control of the Mundesley Sanatorium to Dr. Noel D. Bardswell and Dr. J. E. Chapman, so that the present seems a fitting time for the publication of the results which we obtained there. Though the Mundesley Sanatorium was not *opened till December*, 1899, we had patients under treatment in another house from the preceding June, so that the period which has elapsed since the first of the cases now recorded came under observation may be stated as four years. From June, 1899, to June, 1902, 143 patients were under treatment and we have been able to follow the after-history of 141, leaving two of whom we have been unable to obtain reports. In the absence of any universally recognised system of classification of cases and results we have adopted one which we find applicable for practical purposes. The patients are divided into two main classes according to the absence or presence of fever and each of these are subdivided thus: (1) febrile cases, (*a*) those with advanced disease and (*b*) those with slight disease; and (2) non-febrile cases, (*a*) those in which the disease is of long standing and in which the active stage is a thing of the past and (*b*) those of recent occurrence. The febrile cases were those presenting during their first week of sanatorium life an average afternoon temperature of more than 99° F. The temperatures were taken in the mouth. Great care was always exercised to get the true reading by giving the thermometer sufficient time—15 minutes—and by excluding the modifying influence of exercise and the application of cold, &c. The non-febrile cases were those where the average temperature for the first week of treatment did not exceed 99°. Cases of advanced disease we make to include those with distinct clinical evidence of a pulmonary cavity or with an affection of more than two lobes. Table I. shows the condition of our 143 patients on admission.

TABLE I.—*Showing the Condition of 143 Patients on Admission.*

Febrile Cases.

Advanced disease, 54 (or 37·76 per cent.).	Slight disease, 13 (or 9 09 per cent.).	Total, 67 (or 46·85 per cent.).

Non-febrile Cases.

Long-standing disease, 37 (or 25·87 per cent.).	Recent disease, 39 (or 27·27 per cent.).	Total, 76 (or 53·14 per cent.).

It will at once be observed that we were by no means able to confine ourselves to strictly selected cases. In the early days especially of sanatorium treatment in this country many patients applied for admission who had obviously passed the stage when material improvement in their condition was procurable. 91, or 63·63 per cent., had advanced or else long-standing disease. Of the non-febrile patients, in 37 the pulmonary tuberculosis had presumably come to a standstill but after more or less wrecking the lungs and not before the general constitution had become undermined. In many of these the secondary changes induced by old-standing consumption in the organs of digestion and of circulation as well as those in the lungs themselves, chiefly demanded treatment. A large proportion of these patients had previously undergone long courses of treatment at various health resorts and in other sanatoriums. The remaining 39, or 27·27 per cent., non-febrile patients were, of course, the most favourable of our cases for treatment. They had neither extensive lesions of the lungs nor marked constitutional symptoms. In some there had never been manifest fever, in others this had been subdued before they were sent to us.

In dealing with the results of treatment we record first the condition of the patient at the time of discharge and then follow his after-history up to date. The following headings are used in regard to results: (1) Arrest, with fitness for work again; (2) arrest, but under the obligation of leading such a carefully regulated life as precludes the safe resumption of serious work; (3) improvement, where the general conditions are ameliorated, but where the occasional or constant persistence of fever indicates some activity of the disease; (4) no improvement, where fever and other symptoms remained unchanged; and (5) retrogression, including patients who died in the sanatorium.

TABLE II.—*Showing the Results of Treatment.*

Arrest with fitness for work.	Arrest with inability to work.	Improvement.	No improvement.	Retrogression.
47 (or 32·86 per cent.)	36 (or 25·17 per cent.)	38 (or 26·57 per cent.)	8 (or 5·59 per cent.)	14 (or 9·79 per cent.)

From Table II. it will be seen that in 84·60 per cent. arrest of disease or distinct improvement was attained, while in 15·38 per cent. no benefit was obtained. We now proceed to consider the progress made by our patients subsequently to their discharge from the sanatorium and up to the present date—that is, for the period of four years that have elapsed since our first patients left the sanatorium and of one year since the discharge of the last of the patients (see Table III.).

TABLE III.—*Showing the Progress of the Cases subsequently to Sanatorium Treatment.*

—	On discharge.	Satisfactory condition maintained.	Relapse but living.	Dead.	Total living.
Arrest with ability to work.	47 (or 32 86 per cent.)	42 (or 89·36 per cent.)	4 (or 8·51 per cent.)	1 (or 2·13 per cent.)	46 (or 97·87 per cent)
Arrest with inability to work.	36 (or 25·17 per cent.)	22 (or 61·11 per cent.)	10 (or 27·77 per cent.)	3 (or 8·3 per cent.)	32 (or 88 88 per cent)
Improvement.	38 (or 26·57 per cent.)	8 (or 21·05 per cent.)	12 (or 31·58 per cent.)	18 (or 47·3 per cent)	20 (or 52 65 per cent.)
No improvement.	8 (or 5·59 per cent.)	0	0	7 (or 87·5 per cent.)	0
Retrogression.	14 (or 9·79 per cent.)	0	0	14 (or 100 per cent.)	0

An examination of this table shows that arrest was secured in 58·03 per cent. of all the patients and that as many as 93·97 per cent. of these are still living. Further, that improvement which did not, however, amount to arrest was obtained by 26·57 per cent. and that 52·65 per cent. of these patients are still living. If we now pick out the most favourable classes, those with early disease unaccompanied by fever or whose disease was slight and febrile, we find that in no single instance did improvement fail to be obtained. In 76·92 per cent. in each group such satisfactory arrest of disease occurred as to allow of the patient resuming his work, while in 30·76 per cent. of the former and in 15·38 per cent. of the latter group arrest occurred, but the patient's well-being depended on his following more or less an invalid's life. In the four years and less that have passed since the discharge of these patients from the sanatorium only four, or 7·69 per cent., of the whole number have died, while 40, or 76·92 per cent., have maintained their health and ability to follow an employment.

TABLE IV.—*Showing Particulars of Patients Admitted, Living, Fit for Work, and Dead, Grouped in Febrile and Non-febrile Cases.*

Febrile Cases.

Admitted.	Living.	Fit for work.	Dead.
Advanced disease, 54.	21 (or 38·88 per cent.)	0	32 (or 59 25) per cent.)
Slight disease, 13.	11 (or 84·62 per cent.)	10 (or 76·92 per cent.)	2 (or 15·33 per cent.)
Non-febrile Cases.			
Long-standing disease, 37	30 (or 81·08 per cent.)	0	7 (or 18 92 per cent.)
Recent disease, 39	36 (or 92·30 per cent.)	30 (or 76·92 per cent.)	2 (or 5 13 per cent.)

Of the 43 patients who have died (see Table IV.) four died in the sanatorium. In the cases of two others death did not result from tuberculosis directly.

A point which is of special interest to us is the healing of the disease as evidenced by the complete disappearance of physical signs. In 17 (or 11·88 per cent.) of our 143 cases the signs have entirely cleared up. In another two cases the diagnosis had to be made on other evidence, no physical signs having existed at any time. The clearing up of physical signs is chiefly a matter of time. It is excessively rare to find in four months—the average time spent by our patients in the sanatorium—any very marked change in the stethoscopic examination of the chest, notwithstanding the remarkable change that may have come over the individual's general being, but if many more months are allowed to elapse and the patient's physical examination is from time to time carefully conducted and compared with former records an unmistakeable improvement is often noted. Without doubt râles at one time audible over a third of a lobe may vanish, breath sounds which were cavernous over a very small area may become merely weak, and dulness extending over a whole lower lobe, with perhaps bronchial breathing and râles indicating a tuberculous affection of the pleura and the surface of the lung, may clear up if only watched for a sufficient number of months or even years.

One more piece of information we wish to extract from our cases, and that is in reference to change of climate. A good number of our patients, 32 in all, on leaving the sanatorium went to various health resorts on the Continent and elsewhere abroad, which are more or less renowned for the treatment of consumption. In many cases the principles of health maintenance had been thoroughly learnt and the patients chose to finish their cure in a sunnier and brighter climate; in others, progress with us had not been satisfactory, and it was determined that sanatorium treatment in England having more or less failed the effect of some recognised health resort be tried. Now the subsequent progress of these patients has been closely watched with particular curiosity and interest and we can honestly state that in no single instance has the course of the disease been materially different after going away than it would presumably have been had the patient remained in his own country. There is one class of consumptive, we admit, for whom a better winter climate than England, anyhow that of its east coast, can be found, and this class we never retained at Mundesley: we refer to the subjects of old-standing pulmonary tuberculosis with defective circulations and inability to stand cold, with cartarrhal symptoms and, perhaps, affection of the kidneys or other internal organs.

In our few cases of pulmonary tuberculosis associated with emphysema and asthma the patients did better than we anticipated. We feel some hesitation in referring to the disappearance of tubercle bacilli from the sputum, for it is hard to say when they have vanished for good. Repeated examinations of the sputum of a patient progressing very favourably may fail to discover bacilli, but on another occasion the same patient may suffer from some accidental catarrh and tubercle bacilli may reappear in the expectoration. In the cases of our best results all sputum ceased; *in some of these bacilli persisted so long as there was any* phlegm to examine and in others a gradual diminution in their number had been noted.

In conclusion, our experience emphasises the extreme importance of the early recognition of pulmonary tuberculosis. If adequate measures are taken in the very earliest stages of the malady *we may hope to restore some* 75 *per cent. of our* [illegible] over the bacillus depends, we believe, on the patient constantly living by rules which are based on careful observation of the [illegible]s. He must expend in [illegible] safely be spared by the [illegible] check and *he must take* no liberties with health. The supreme importance of these and other principles of sanatorium treatment is apt to be lost sight of by those relying on mere change of climate for the treatment of consumption.

ON THE TREATMENT OF THE SUMMER DIARRHŒA AND VOMITING IN INFANTS.

By H. T. HICKS, F.R.C.S. Eng.,
OBSTETRICAL REGISTRAR AT GUY'S HOSPITAL; LATE RESIDENT MEDICAL OFFICER AT THE EVELINA HOSPITAL FOR SICK CHILDREN.

THE question of the treatment and nursing of infants' summer diarrhœa and vomiting is becoming urgent again. It must be understood that this short account deals with it simply from the practical point of view, giving the experience of those methods which to my mind have proved most successful while [illegible] It has been said that [illegible] plaint die from thirst [illegible] the circulation and the circulation from the tissues. The fluid supply is cut off by the damaged alimentary canal refusing to tolerate the input. All treatment then is directed against the cause—e.g., to clear out by the least irritating means the toxins which are the primary cause and at the same time to introduce a fluid that can be retained and absorbed. One has only to see the baby, lying in his cot, listless, restless, collapsed, with eyes half closed, and then to notice him rouse up suddenly with an eager look when a little water is placed upon his lips, or even if only a spoon clicks against the feeding glass. The infants must have fluid, they ask for it, and their appeal is physiological, *even though the cause of their want be pathological.* The treatment of this fatal disease consists almost entirely in good careful nursing, and this nursing resolves itself into three parts—feeding, rest, and cleanliness. Drugs have shown themselves to be of very doubtful assistance with one exception, oleum ricini, and this seemed most effectual given in one initial aperient dose, followed after a day by a course of from six to eight six-hourly drachm doses of the mistura olei ricini, B.P., with the addition of sodium bicarbonate, two grains to each dose.

Ordinary, not excessively bad, cases generally respond to the following course. On admission a nice warm bath is given and then, with the child's head hanging over the side of the cot, the stomach is washed out with slightly alkaline water, and when this comes away clear there are passed down the tube one drachm of oleum ricini and an ounce or two of albumin mixture with a drachm of beef-juice or raw meat-juice. If the child keeps this down he is fed again by the mouth with the same quantity in two hours. If, however, the food is rejected smaller quantities are given at shorter intervals, even as frequently as a drachm every quarter of an hour. If the baby continues to be sick the beef-juice or raw meat-juice is omitted and if vomiting still persists all feeding by the mouth must be stopped and intracellular infusion of normal saline solution is resorted to.

This brings us to the worst class of cases of diarrhœa and vomiting, which are admitted listless, with sunken eyes, retching, and looking almost past help. These, after an initial warm bath, are infused with normal saline solution, about four ounces every six hours with—if absolutely necessary—the addition of a very little brandy. I lay stress on the fact that an infusion of a small amount is more beneficial than one of half a pint or more, this latter being frequently followed by considerable hyperpyrexia, *albuminuria, and in some cases general œdema.* It is important to infuse extremely slowly. Repeatedly, when I infused rather rapidly, the temperature rose quickly. The normal saline solution enters the loose, baggy folds so readily and with so little resistance that one may be tempted to inject too fast. An ordinary four-ounce brass *syringe with a piece of rubber tubing* and a hypodermic needle, all previously boiled, seem to answer very well as an infusion apparatus for babies. Washing out the stomach [illegible] retained washes out the lower part of the bowel. Feeding entirely by the intracellular way can be continued for about 24 hours if necessary and then drachm doses of albumin *mixture tried* and, if retained, increased, and small quantities of beef-juice or raw meat-juice added. The infusions should be lessened and stopped altogether when the patient is able to take a sufficient quantity by the mouth. After 24 hours of feeding with albumin mixture we can attempt a gradual return to milk and we begin by adding drachm doses of peptonised milk or Benger's food to the albumin mixture, increasing gradually, until we give either *peptonised milk* or Benger's food undiluted. Benger's food is more popular with babies than peptonised milk. Before returning the baby to his mother we must, however, get him back to ordinary milk diet and it is found that a food which is borne better than the old milk and lime-water or barley-water mixtures is one of milk and an oatmeal gruel. A specially prepared oatmeal (Knorr's Hafermehl) seems to agree excellently with these babies. To this course of treatment we have returned again and again after various excursions from time to time to different *other forms of feeding*; we have used all kinds of cream mixtures; we have used whey, but none of these were satisfactory.

There are a few more points worth mentioning: we give very little brandy, and if it has to be ordered it is administered by preference hypodermically so as not to irritate the stomach. We bathe the babies at least twice a day, but very, very gently, moving them as little as possible. The bath often seems to allay the thirst to some extent and always the restlessness. Except for the bath we keep the baby in absolute seclusion. We choose the quietest corner of the ward and we only disturb him when absolutely necessary. The nurse attends to him before feeding and immediately the feeding is completed the curtain is drawn over the child—we keep all bad diarrhœa and vomiting cases in curtained beds—and the baby is left "in retreat" until the next feed, if possible. The mouth of these patients requires a great deal of attention, and nothing keeps it better than ordinary cold water, or slightly alkaline water (sodium bicarbonate one grain to the ounce). It must always be washed out before food and—if we can risk it without exciting fresh vomiting—also afterwards. Medicated mouth washes are generally harmful through having too decided a taste, so causing a recurrence of sickness. The period when the care of the mouth is most important is while intracellular feeding only is being carried on. The swabbing of the mouth then does not only serve the purpose of keeping the part clean but also of allaying the thirst and the accompanying restlessness. We must not, however, allow ourselves to give in to the baby's evident craving for fluid which he shows by eagerly sucking the wet rag we are using and let him have a drink of water, because this misplaced pity has again and again re-started the barely arrested vomiting. Another point which the nurse must be extremely careful about is the thorough scrubbing and disinfecting of her own hands after having attended to the infant. This is most essential, as by infecting the baby's food with even the smallest particle of fæcal matter the sickness, which has just been stopped with great difficulty, may be started again. So much importance is attached to this matter in some children's hospitals on the continent that special nurses are told off to do the feeding, while others attend to the cleaning of the patients.

The above *régime* applies exclusively to acute cases. For chronic cases of diarrhœa and vomiting who cannot retain milk and milk mixtures, we have found malt soup very satisfactory. Babies can be kept on this food for as long as three weeks and then gradually be trained to take ordinary milk, generally *viâ* Benger's food. Horlick's malted milk also has acted fairly well in some cases of this kind. A new preparation, "pegnin," which has the great advantage of reducing the casein in cow's milk to a very fine, flocculent curd, promises to become a valuable addition to the infant's dietary. Another experience which we have had in obstinate cases of habitual vomiting is that some will not reject their food if it is introduced by the nasal tube, whereas all attempts at feeding by the mouth are useless. If to the treatment of chronic cases we could add sunshine and good, fresh, bracing country air, we might hope to carry it out with very much more chance of success. I append the formulæ of the foods above mentioned hoping they may prove useful.

Albumin mixture.—Beat up the white of two fresh eggs and add gradually one pint of cold, sterile normal saline solution. Stir up well and strain through muslin. Keep cold.

Beef-juice (Guy's Hospital Pharmacopœia).—One pound of lean beef is finely chopped and added to one pint of water. This mixture is then gently heated (being constantly stirred) until the temperature is 55° C. (130° F.) at which it is kept for 15 minutes. To this are added three ounces of beef-tea and a small teaspoonful of salt. The whole is then strained through muslin over a hair sieve and filtered into a flask in which it is to be kept. If placed in an ice-box the juice will keep for two or three days.

Raw meat-juice.—One pound of lean beef is finely chopped. Add to it five ounces of water, mix up well, and stand on ice for three hours. Then strain through muslin, the meat being well squeezed. Keep in the ice-box.

Malt soup.—50 grammes (13 drachms) of wheat flour are well mixed up with one-third litre (12 ounces) of fresh cow's milk and the mixture is passed through a hair sieve. In another vessel 100 grammes (three ounces two drachms) of extract of malt are dissolved in two-thirds of a litre (24 ounces) of water at 50° C. (122° F.) and to this are added ten cubic centimetres (two and a half drachms) of an 11 per cent. solution of potassium carbonate. The two preparations are then mixed and boiled up quickly.

Knorr's Hafermehl.—Supplied by Messrs. Allman, 9, Cullum-street, Fenchurch-street.

Pegnin.—Supplied by Farbwerke, 51, St. Mary-axe, E.C.

THE

SUCCESSFUL TREATMENT OF SPORADIC DYSENTERY BY APLOPAPPUS BAYLAHUEN.

BY WILLIAM FINGLAND, L.R.C.P. & S. EDIN.

IT falls to the lot of most practitioners to have from time to time to treat cases of sporadic dysentery, colitis, or one of its protean forms, and when a more or less chronic character is assumed no disease is so rebellious to treatment. And when we consider the grave pathological condition of the colon this is not a matter of much surprise. Briefly, the mucous membrane is thickened, œdematous, congested, and cyanotic; the eminences and depressions on its surface are practically obliterated. It is bathed in a muco-serous exudation and its surface is covered with hæmorrhagic petechiæ and suppurating foci. For the amelioration and cure of these conditions many remedies have been suggested, which I will mention later, but from collected experience the disease tends to pursue a chronic and incurable course.

The drug which I wish to introduce to the notice of the profession is indigenous to South America and in Chili and other provinces of the west coast of South America it is considered a specific for this disease. It is called locally hysteronica and its botanical name is Aplopappus Baylahuen. Messrs. Parke, Davis, and Co. of London have prepared and supplied me with a fluid extract thereof. The plant belongs to the class of balsams. The fluid extract is a dark green gummy fluid, of a syrupy consistence, and has a peculiar odour. It is not miscible with water and requires to be prescribed alone and not in combination. The dose is 20 minims thrice daily, suspended in a tablespoonful of cream, milk, or freshly prepared almond emulsion. During the exhibition of this drug the diet must be carefully supervised, all vegetables and fruits prohibited, and a diet of beef, mutton, fish, and light farinaceous dishes enjoined, with hot water and milk to drink, the latter with some caution. In the three cases (each possessing in a marked degree the typical symptoms of this disease) which have come under my notice and presently to be described the curative effects of this drug were so conspicuous that I hope other members of the profession, with more frequent opportunities, will give this drug a more extended trial, as judging from my own success it would appear to be a specific for this troublesome malady.

CASE 1.—The patient was a lady who was believed to have contracted the disease from drinking water when staying at Heswall, Cheshire (before the present water-supply was introduced). She has had many attacks during the last ten years, each attack increasing in severity. The symptoms were quite usual—nausea, vomiting, thirst, pain, tenesmus, tormina, with incessant diarrhœa accompanied with scanty muco-purulent dejecta and copious hæmorrhages. The last attack occurred two and a half years ago, when all the usual remedies were prescribed, including ipecacuanha, magnesium sulphate, and the newer astringents such as tannoform, tannigen, and fortoin. The colon was also irrigated with silver nitrate (which had formerly afforded good results), starch and opium, supra-renal extract in thin gruel, and other soothing astringents and sedatives with very little benefit. Hysteronica was prescribed for the first time, when all the symptoms gradually disappeared and the patient has now been free from any recurrence for two and a half years.

CASE 2.—A nurse in a Liverpool hospital contracted the disease when on a visit to Scarborough. She suffered from similar symptoms to the preceding, with very brief intermissions for four years. Latterly the anæmia and asthenia were pronounced, she was practically bedridden, and contemplated giving up her occupation. She had been under the care of several members of the staff of that institution but did not show any progress towards recovery. I mentioned this drug to her then medical attendant and induced him to prescribe it. After taking a few doses the improvement was marked and continuous, her usual health and vigour being rapidly restored. About 18 months have now elapsed without any return of the symptoms.

CASE 3.—An engineer aboard a steamship trading between Liverpool and the West Indies stated that he had contracted the disease from using impure drinking water, in those islands. His symptoms were similar to the above but not so severe as entirely to prevent him from following his work. I had tried magnesium sulphate but with no benefit, when I prescribed hysteronica which rapidly removed all symptoms of the disease. I last saw this patient on June 29th, 1902, when he was quite free from any recurrence and I have since been informed that he has remained in perfect health.

Liverpool.

A CASE OF TRAUMATIC TETANUS TREATED WITH ANTITOXIN; DEATH.

By H. S. ELWORTHY, L.R.C.S. Eng.,

CASUALTY OFFICER TO THE GREAT NORTHERN CENTRAL HOSPITAL.

TETANUS, fortunately not a common disease in this country, is one of those which still maintain a very high mortality and therefore any therapeutic measures that may be taken to cure it must be of great interest to the medical profession, whether successful or otherwise. In the days before antitoxin the mortality from traumatic tetanus was something like 80 or 90 per cent., and at the present time, so far as I can gather, it amounts to about 50 per cent. or more, as unfavourable cases are probably not so often recorded as successful ones.

The case I have to relate was that of a boy, aged 14 years. He had had more than the usual share of illnesses and accidents and was not robust. He "picked at his food" and was difficult to feed at all times, was slight of build, and what one would describe as a little delicate. While playing in a cricket field on June 27th he stepped on a spike of some kind which perforated the sole of the left foot. Medical aid was not sought for. The wound suppurated and apparently got well, so that no more was thought about it. On July 2nd he fell down on his back but made no complaint of it. On the 4th he began to complain of pains in the back, but thinking it was only a little rheumatic stiffness he went away and spent the day with a relative. On the morning of the 5th, however, he found that he could not open the mouth properly and had spasms of the muscles that caused him to bend forwards and several times he fell down on his hands and knees.

When I saw him for the first time he was walking about the room and a spasm occurred about every five minutes, causing the head and back to bend forwards. The pain was not severe and passed off in a few seconds. He declined to lie down as that caused more pain. He bit his tongue slightly in one of the spasms. The mouth opened about half an inch. There was no tenderness and the pains were about the trapezii muscles, none about the jaws. On examining the foot a small piece of grit, like cinder, and of about the size of a millet seed, was found imbedded in the skin lying in a smooth cavity. This was removed and the wound was dressed with a 1 in 20 solution of carbolic acid. The parents had given him a dose of liquorice powder without result. Three grains of calomel were given at once and a mixture of bromide and chloral was ordered to be taken every three hours. At 3 P.M. the spasms were still recurring about every five minutes. He had tried to sleep but was awakened in about ten minutes by a spasm, or else just before becoming unconscious he got clonic contractions of the hands and arms. He was becoming tired. The abdominal muscles were rigid, as were also those of the back. The spasms caused the expulsion of large quantities of flatus. By 6 P.M. I had procured through a druggist some tetanus antitoxin from the Jenner (now Lister) Institute of Preventive Medicine. As it was on Sunday the special messenger found some difficulty in getting it, having to try at several places before he could obtain any, and this caused some delay. Mr. E. H. Hare, who saw the patient in consultation and rendered valuable assistance on several occasions during the illness, administered chloroform while I excised the wound from the sole, swabbed the base with chloride of zinc, 40 grains to the ounce, and injected ten cubic centimetres of the antitoxin under the skin of the abdomen. He slept for about one hour after this and then the spasms returned as before. I could see no improvement, although the patient said that the pains were less severe but more frequent. His face was red, the skin was sweating, the pulse was irregular (just after a spasm) but of fair volume, and the temperature was 98.8° F. At midnight the spasms were becoming more frequent, so another injection of ten cubic centimetres of antitoxin was made under the skin. He slept better—as much as 20 minutes at a time between the spasms—and felt better. Urine was passed into the bed on several occasions, so there was no occasion to use a catheter.

On the 6th at 10.30 A.M. a third injection was made into the left thigh and the foot was dressed as the bandage had become loose. At 12.40 P.M. he seemed quieter but attempts to feed him by the mouth brought on the spasms. The head was now retracted and the spasms caused arching backwards but were never severe nor was there any risus sardonicus at any time. At 5 P.M. he had been asleep for an hour after taking the medicine. He was then taking 15 grains of bromide, 15 grains of chloral, and five minims of tincture of cannabis indica every three hours, but the spasms now returned just as frequently, sometimes at intervals of five or six seconds. He was again put under chloroform and ten cubic centimetres of antitoxin from another source were injected into the spinal canal between the third and fourth lumbar vertebræ and the foot of the bed was raised nine inches so that it should gravitate towards the medulla. Half an hour afterwards he had a succession of spasms coming on every few seconds. He then slept for an hour, having occasional spasms at intervals of from 20 to 40 minutes. He could now turn on his side, which he could not do before owing to rigidity of the arms. He paid no attention to sounds, so that a smoking concert across the road had no effect on him nor the accidental slamming of the door by the wind. Ten grains of calomel were administered as the bowels had not acted.

On the 7th, at 9 A.M., the patient had had a fairly good night. The bowels had not been opened. The spasms came on severely from 8 to 8.30 A.M., they were more sudden and jerky and caused a sort of cry from the contraction of the abdominal muscles expelling air from the lungs. There were clonic spasms as well. Food could not be taken by the mouth. He was again chloroformed and a second injection was made into the spinal canal at 9.45 A.M. A stomach tube was passed and an egg with five ounces of milk and some meat extract were given and a nutrient suppository was inserted into the rectum. The foot of the bed was raised as before. Some antitoxin was also applied locally to the foot. The spasms began again at 11 A.M. and became rapid and more severe at 11.15 A.M., there was a succession of about 16 in a short interval. He was sweating, the pulse was 96 and fairly regular, the respiration was 46 and rather shallow, and the temperature was 101.2°. At 12.50 P.M. medicine was passed through a funnel and tube into the mouth. He could swallow with difficulty. On one occasion the right eye was found deviating outwards. At 1.25 P.M. no improvement was noticed and a sixth injection of antitoxin was given under the skin. From the morning until the end chloroform was given at each spasm, sufficient to relax the muscles. They were occurring from every 10 to 15 minutes. In the afternoon the features looked drawn and pinched. The patient was fed through the tube every five hours with milk, egg, and extract of meat, and when he could not swallow the medicine it was given him with the food. At 5.30 P.M. he began to have the appearance of septic fever. As the bowels had not acted since the commencement of the illness a turpentine enema was given and was returned only a little stained by fæces. At 7.30 P.M. he collapsed and appeared to be moribund, the pulse was intermittent, irregular, and feeble, and the breathing was jerky and shallow. The eyes were semi-closed and the lips and the tongue were dry. The patient however, rallied and at 8.30 P.M. was given a nutrient enema which was expelled about ten minutes afterwards, just as the suppositories were. He also involuntarily expelled his evacuations with some force after this. The spasms occurred now at intervals of from five to eight minutes. The temperature was 104° and he was sponged at intervals, which brought it down to 102.8° by 11.20 P.M. The skin over the bony parts was red and threatening bed sores. It was rubbed with spirit each time he was turned over.

On the 8th he was fed again at 1.40 A.M. and some opium, digitalis, and strophanthus were added to the chloral mixture. On passing the stomach tube it was firmly gripped by muscular contraction. The spasms continued with some regularity every seven or eight minutes but were less severe. There was a slight expiratory cry, with arching of the back and retraction of the head, with general rigidity, for a few seconds, then a succession of very rapid and shallow breaths as if the diaphragm could work to a slight extent but was hampered by the abdominal and thoracic muscular rigidity. This enabled a little chloroform to be absorbed and the breathing became normal and the muscles relaxed in a few seconds. At about 5 A.M. the patient was unconscious and the corneal reflex was absent. He was rather blue about the lips and the face had a dirty septic-looking colour. The temperature was 107°, the respiration was 54, and the pulse was from 120 to 140 but difficult to count. He was sponged again and the foot was dressed with carbolic acid and gauze. He was fed at 6.50 A.M. He had a longer interval from spasms—about three-quarters of an hour. At 7.30 A.M. the temperature was 105°. He had eight more spasms between this time and 10.33 A.M., when he died in one of them, the temperature just before death being 105°.

Dr. F. W. Andrewes very kindly examined the piece of skin removed from the foot and reported that he had found one or two long slender bacilli in the tissue—staining by Gram's method—which were not sporing and hence could not certainly be identified as tetanus; that there was inflammatory infiltration consisting chiefly of polynuclear leucocytes beneath the site of the wound; that horizontally I had cut far wide of it, but vertically it extended to the confines of the piece removed and probably deeper still. At the time I could not see with the naked eye that I had not got beyond the inflammatory area, nor feel any difference with the finger.

The convulsions throughout were mild in character—nothing more than one gets in ordinary epilepsy—and death appeared to have resulted from the high temperature and exhaustion from the number of spasms.

The antitoxin in this case appeared to have little or no more effect than the chloral and bromide and the injection into the spinal canal to be no more efficacious than under the skin. The question of injecting into the ventricle of the brain had been discussed but it was decided not to do so as there did not appear sufficient evidence that the results obtained justified the additional risks from the operation. Physostigmine has been used in some cases with success—so, indeed, have many other drugs—and more often without. It is a distinctly depressing remedy and for that reason I did not feel inclined to use it. The serum treatment is not as generally successful as we could wish and it is to be hoped that further researches on toxins, immunity, &c., may result in the production of a serum that will be satisfactory in all cases. It is quite possible that it may have had some effect in mitigating the severity of the spasms. The local application at the commencement might be of some use as an addition to the injections.

Ehrlich's theory is a distinct advance in giving us a vague idea of the complicated chemical changes that occur in the body and makes one speculate on the effect of injecting serum. If it were simply a question of neutralising a poison there would be nothing to worry about, but when we think of the intricate chemical grouping of such complex bodies as have been called amboceptors, haptophores, the various antibodies, toxoids, &c., one is inclined to marvel as to whether the injection of an antitoxin may not in some way interfere with the natural production of antitoxin by the cells of the body, that is to say, interfere with the natural cure rather than promote it. The same reasoning, however, probably applies to the action of drugs as well, of which the medical man has been said to know little. Perhaps we shall know more by the end of the century.

Crouch-end, N.

THE TREATMENT OF CONGENITAL PHIMOSIS.

BY J. F. WOODYATT, M.R.C.S. ENG., L.R.C.P. LOND.,

PRINCIPAL MEDICAL OFFICER, HALIFAX UNION POOR-LAW HOSPITAL.

I HAVE lately performed a new operation for phimosis which is very simple and which gives better results than circumcision, inasmuch as after the operation the glans is left covered by a foreskin which is easily retracted and replaced. Before I describe the operation I should like to emphasise the fact that in congenital phimosis the constriction which prevents retraction of the prepuce is caused by a tight ring of mucous membrane just inside the prepuce. The skin of the prepuce is, in my opinion, never redundant; it is very elastic and is never the cause of the condition. If more proof is required that phimosis is caused by a stricture of the mucous membrane let us examine a case of paraphimosis which has been reduced by cutting the tight band at the back of the glans. It will be found that the incision is quite out of sight inside the orifice of the prepuce. Now the cause of the condition should guide us in the treatment of these cases and my operation consists of cutting the constriction and preventing its recurrence by the introduction of sutures. I have performed the operation in a number of cases and the result has always been perfect—that is, a glans covered by prepuce which is easily retracted and replaced. Why the operation of circumcision has been so frequently performed I fail to see. The object of the surgeon should be to leave the deformed organ in a normal condition and not to mutilate it by cutting away the covering of the glans. Let us apply our conservative surgery to the penis and circumcision will no longer occupy a place in modern surgery.

My method of operation is to hold the penis between the left thumb and forefinger, to retract the prepuce as far as it will go, and then with a pair of sharp-pointed scissors held in the right hand to cut the stricture first on the right side and then on the left side. It is not necessary to slit up the mucous membrane far back but it should be done equally on both sides. When the stricture is relieved I retract the prepuce and separate the mucous membrane from the glans and also remove any smegma there may be around the corona. Now by introducing one suture into each cut the operation is complete. Each suture is introduced so as to make what was a longitudinal incision into a transverse one. This is done by joining the commencement of the incision to its termination in the same way that simple stricture of the pylorus is now relieved. I use fine chromic gut and an ordinary sewing needle. No after-treatment is necessary. The little wounds are inside and will heal readily if left alone. If the sutures do not come away of themselves they may be removed in a week or ten days, when it will be found that the prepuce is easily retracted and replaced.

Halifax.

Reviews and Notices of Books.

Life and Labour of the People of London. By CHARLES BOOTH, JESSE ARGYLE, ERNEST AVES, GEORGE E. ARKELL, ARTHUR BAXTER, and GEORGE H. DUCKWORTH. Final volume. Notes on Social Influences and Conclusion. London: Macmillan and Co., Limited. New York: The Macmillan Co. 1902. Pp. 451. Price 5s. net.

THIS is the seventeenth and last volume of Mr. Charles Booth's great work. Roughly speaking, the latter half of it is devoted to giving an abstract of the contents of the complete work (pp. 225-439). The first series (of four volumes) is devoted to Poverty, the second (of five volumes) to Industry, and the third (of seven volumes) to Religious Influences. The final volume is entitled "Notes on Social Influences and Conclusion." "My work now completed has been from first to last," the author says, "dedicated to my wife without whose constant sympathy, help, and criticism it could never have been begun, continued, or ended at all." And a noble work it is in its aim and in its execution. The reader who looks for teaching finds facts from which he has to construct his own inferences. "Some introduced views," says Mr. Booth, "and convictions have been intentionally allowed to show themselves here and there in comments made, but no body of doctrine is submitted."

The idea with which Mr. Booth began his work was that every fact which he needed was known to some one—the information had only to be collected and put together. But it was necessary to see that the statements received were really facts; they had, as he puts it, "to be reduced to some common measure of validity." Those obviously false had to be rejected, the improbable withheld, the exaggerated toned down, and the requisite emphasis given to an understated truth. A large inquiry made on these principles naturally demanded much careful work on the part of painstaking men of acute observation and high intelligence. Mr. Booth had for the most part the same co-workers throughout; their individual views were various but they worked to the common end of unbiased exposition and their anticipations as to the outcome ("perhaps the most subtle form of bias," as he keenly remarks) differed greatly and changed from time to time as the facts accumulated. Mr. Booth was fortunate in his assistants; the fact that he selected them so wisely shows his judgment. There is constant evidence that the inquiry was carried out by men of clear vision who were also men of the world. There is no blinking of plain facts. The working of things is plainly stated. The brothel and the various forms of prostitution are, for example, described in the plainest language, so that the thoughtful among us may realise the nature and surroundings of the social evil which we wish to cure. It is, perhaps, not too much to hope that a larger knowledge of its nature and manifestations may lead to measures more likely to be useful than any at present attempted.

It might be imagined that a book with such a scope, being full of statistical details, would be dull. In such an inquiry statistics are of course necessary, but they do not appeal to everyone. Mr. Booth appears to take a positive pleasure in them, but he has no word of censure for the weaker brethren who do not share it. "If I may borrow from the vocabulary of a more charming art, I would," he says, "in the opening phrases of my finale introduce again the statistical motif of earlier volumes," and he goes on to advise those whose souls are not attuned to figures and who find no harmony in their tabular arrangement to pass lightly over these pages of his score. This advice may be followed by those to whom it is addressed. They will find that more remains behind—that the residue is intensely interesting and often lightened by humour. There is, for example, an instructive story of a good clergyman who gave pecuniary assistance to one of his flock who was unable to work because he lacked the necessary tools of his craft. The charity was first bestowed—inquiry followed. The recipient was a well-known burglar. To many people it will doubtless come as a surprise that the occupations of the people are perfectly well known to those who work amongst the poor and that no secret is made of the fact by those who follow some one of the less esteemed industries. A deaconess was hailed from a window by a man who asked her to come and dress a wound on his hand. In answer to her inquiry as to how the accident happened he told her that in getting out of a gentleman's window the night before he had fallen on the railings.

The points dealt with in this volume are arranged under four chief headings: (1) Some Comparisons; (2) Habits of the People; (3) Notes on Administration; and (4) Conclusion. Overcrowding and extreme poverty do not always go together —a point which cannot have failed to strike anyone even moderately familiar with the life of the town. The very poor are always overcrowded but they are not the only ones affected. Those who have to live near their work have often to pay huge rents for scanty accommodation. The localities where this state of things exists are given in detail. Mr. Booth refers with due praise to Mr. Rowntree's inquiry into the poverty of York—a city in which fewer recent sanitary improvements have been made than is the case in London.

The subjects considered in Part II. are: (1) Marriage and Morality; (2) Sundays, Holidays, and Amusements; (3) Betting; (4) Drink; (5) Clubs; (6) Notes on Pawnbrokers and Money-lending; and (7) Economic Conditions of Life. The few who know intimately the life of the people of London will be struck with the accuracy of the picture here presented, and those now ignorant, who wish to know it, will be able to understand something of its true inwardness, for the book presents facts without impressionism or reserve. The ethical standard concerning marriage and morality differs greatly in the case of the poorest and the richest classes, but public opinion is not less strong amongst the former. The evil effects of Bank holidays and the increasing curse of betting are laid bare and the question of drink is considered calmly and without bias. The use and abuse of clubs are very clearly indicated. There is little moralising in the book but a comparison on the modes of thought of the Eastern and the Western nations must be cited:—"The Eastern method is to transfer the struggle of life from the arena of the world to that of the soul and quell it there, the Western to drown the tumult of the soul in action." There speaks the really wise man.

Part III. (Notes on Administration) deals amongst other things with public-houses, prostitution, the police, and housing. It is, on the whole, satisfactory to learn that Mr. Booth's observations on public-houses and on publicans place them in a less unfavourable light than that in which they are viewed by many serious reformers. He is of opinion, however, that public-houses should be under more stringent control and that the administration might well be carried out by a small committee of the London County Council, assisted by assessors. He believes that as a result new legislation would be directed to the extra rating on the increased value created by granting licences, to placing clubs under the same restrictions as public-houses, to alterations in the regulations of the hours of supply, to the avoidance of penalising drinks which contain little alcohol, and possibly to the municipal ownership of licensed houses.

Of the metropolitan police Mr. Booth gives, on the whole, a very favourable account, although he is inclined to believe that "as police-court witnesses they are too expert." A magistrate who constantly heard their evidence said that he had learnt when to distrust it. "Perhaps this is a safeguard," says Mr. Booth, "for if accepted in so critical a spirit this expert professional evidence will be taken for what it is worth and no more." On the question of housing there is much valuable information. There is a large and clear map showing the places of worship, the schools, and licensed houses in Central and East London.

Part IV. contains the Conclusion which deserves the most careful study; it is very short, occupying only 16 pages. It can neither be condensed nor summarised. It must be read as it is written. Charles Booth has done a great work for those who live and labour in London. May it in due time bear fruit.

Foods: their Composition and Analysis. By ALEXANDER WYNTER BLYTH, M.R.C.S. Eng., F.I.C., F.C.S., and MEREDITH WYNTER BLYTH, B.A., B.Sc., F.I.C., F.C.S. Fifth edition, thoroughly revised, enlarged, and re-written. London: Charles Griffin and Co., Limited. 1903. Pp. 616. Price 21*s.*

WITH the advance of analytical methods and with, also, fresh legislation on the adulteration of food, it was inevitable that a further edition of this well-known and standard work on foods should be issued. Certainly great advances have been made since Mr. A. Wynter Blyth brought out his "Practical Chemistry," a quite small volume compared with the book before us, and his treatise on "Poisons," which is uniform with it. Mr. Wynter Blyth has now availed himself of the assistance of his son in editing the work and to collaboration we may assign some new chapters, as that on the Bacteriology of Water and the Detection and Estimation of Arsenic. Much of the work of necessity has been rewritten owing to the fact that since the issue of the previous edition legislation has been extended and new matters have arisen for consideration arising out of the beer-poisoning epidemic in the Midlands. The introductory chapters on the History of Adulteration have, we think, been wisely retained, as well as those dealing with the legislation on this subject in other countries. This plan, as far as we know, has not been adopted in other works and the chapter alluded to affords very interesting reading, tracing not only the kind and degree of fraud practised in regard to food in early times but relating also the methods of detection employed. It might be anticipated that the work of the Analytical Sanitary Commmission of THE LANCET would be described in this section and it is so, the authors acknowledging the value of the work of THE LANCET, past and present, in regard to protecting the public against the adulteration of its food. The chapter on the Examination and Analysis of Water is excellent and quite up to date, but we think that the section on Alcohols and Spirits might have been extended with advantage: we can find little in it differing from that which appeared in the previous edition on whisky, brandy, and gin, yet during the past few years some important contributions on the chemistry of potable spirits have been made, notably by Allen, Schidrowitz, Hewitt, THE LANCET Special Commissions, and others. We find, by the way, in the present edition a paragraph on whisky in which the bad effects of spirits are referred to furfural. In other sections the word is spelt "furfurol." A misprint in the previous edition has also evidently escaped the authors' attention in the proof-sheet. Thus in a paragraph on the detection of aldehydes by means of fuchsine it is recommended to make up a standard solution containing 0 050 gramme per litre of acetic anhydride. "Anhydride" should, of course, be "aldehyde." The footnote on p. 398 in regard to tannin in brandy might have been left out as it is now somewhat ancient history. We still think that analysts should give more attention to the question of differentiating by chemical analysis one kind of spirit from another. As it is, if a sample of spirit is sent to the public analyst which has been purchased as brandy and yet which proves to be whisky or worse he will report it on his certificate as genuine so long as its alcoholic strength is satisfactory, and probably few analysts are aware of the chemical evidence which can be brought to bear in distinguishing a genuine grape spirit from a malt or a grain spirit.

We congratulate the authors on having brought this well-known work up to modern requirements in regard to the detection of the adulteration of food. We have expressed the opinion before that the work is of a thoroughly standard character and that it is a very valuable and trustworthy guide to the modern analyst.

Medical Microscopy, designed for Students in Laboratory Work and for Practitioners. By T. E. OERTEL, M.D., Professor of Histology, Pathology, Bacteriology, and Clinical Microscopy, Medical Department, University of Georgia. With 131 Illustrations, some coloured. London: Rebman, Limited. 1903. Pp. 362. Price 9*s.* net.

THE author of this book recognises the fact that medical works are being produced every day and that an addition to medical literature is not to be made light-heartedly. Owing, however, to the rapid growth of microscopy as an aid to diagnosis and to the fact that, in America at all events, those who graduated more than a decade ago received but scanty instruction in laboratory work, it is believed that there is a distinct need for some work such as the present volume. It is especially intended for the beginner in microscopy and for the man who has to dispense with the advantages of a laboratory or of a personal teacher. In a work which in the short space of 362 pages undertakes to treat of the technique of section cutting, staining methods, bacteriology, morbid histology, and the histology of the blood it is needless to speak of sins of omission, indeed, omission of all but absolutely necessary details becomes a virtue. A rigid selection of the best methods and the elimination of all non-essentials alone make the task possible, and even then it argues considerable courage to undertake such a work. Granted the above limitations it must be confessed that Professor Oertel has been successful in giving a clear and accurate account of his subject and one which will doubtless be of value to those for whom the book is intended. At the same time it is impossible to avoid the thought that a short time spent in a laboratory would be of extreme value even to the reader of this book.

A clear account of the microscope and of the methods of hardening, cutting, and staining tissues is followed by chapters on bacteriological methods with descriptions (which as a rule are excellent for the avowed purpose of the book) *of the principal pathogenic germs.* It seems a pity that in the section on Mycoses the illustrations should be of the common moulds, while the parasitic diseases of the hair are left unillustrated and very scantily described. The morbid histology of tumours is next treated in a section occupying some 30 pages. This portion is illustrated fully by reproductions of photographs of sections of the various tumours described. Nearly 60 pages are devoted to the study of the blood, and though the descriptions of methods and of the varieties of cells met with are good and clear it is impossible not to feel pity for the student who has to pick his way through the mazes of blood examinations without more help than this section can afford him, good though it is. The urine is decidedly well treated and the tabular statements of renal diseases with their associated urinary deposits will be very useful. The importance of knowing the total quantity of urine passed, and the futility of percentage analyses without this knowledge, are not so strongly insisted upon as English experience would warrant. A section on the examination of the sputum is good.

It is impossible not to recognise the many good points of this book, while at the same time it is equally impossible not to feel the great difficulties which lie in the way of an adequate treatment of so large a subject in so limited a space. The volume is well produced, but there is room for a little more careful "reading." Several proper names are misspelt—Ziehler for Ziehl, Marmoret for Marmorek, Schnell for Schull—while certain decimal points are missing, so that both the bacillus coli and the streptothrix actinomycosis are said to be 5 μ in diameter, while the bacillus anthracis is described as 1 μ to 5 μ in thickness, and in describing the indol reaction sodium nitrate is substituted for sodium nitrite.

Manuel de Bactériologie Clinique. Par M. FUNCK, Chef du Laboratoire de Bactériologie de l'Université de Bruxelles, Directeur de l'Institut Provincial de Sérothérapie. Second edition. With seven coloured Plates. Bruxelles: Henri Lamertin. 1903. Pp. vii.–239.

THIS work, which has reached a second edition, is a *résumé* of the course of practical bacteriology given at the University of Brussels and is also intended to serve as a handbook for medical men by means of which they may learn how to make the ordinary bacteriological examinations which are required in practice. It must be confessed, however, that as a practical manual this book leaves much to be desired, many of the instructions being singularly lacking in precise details. This is readily understood if the volume is intended to be supplemented by the demonstrations of the practical course, but the lack of detail militates against its usefulness to practitioners. A very much larger amount of space is devoted to the consideration of immunity than is usual in a work on clinical bacteriology, very nearly half the book dealing with this subject. The author justifies this by insisting on the importance of accurate knowledge in order that rational practical treatment may be employed.

The first two chapters are occupied by a succinct and clear account of Microscopical and Bacteriological Technique. The pathogenic organisms are studied in relation to the secretions or excretions in which they are usually found and the successive chapters deal with the bacteriology of pus, false membranes, sputum, and fæces. This arrangement has obvious clinical advantages, though it tends to the appearance, in the chapter on pus, of organisms such as bacillus tetani and bacillus tuberculosis, the principal function of which is certainly not that of pyogenesis. Turning to the practical side of the book and taking the serum diagnosis of typhoid fever as an example of the instruction given, we find that, though the examination of the "hanging drop" is mentioned, yet the only method described is that of macroscopic sedimentation in ordinary test-tubes requiring the use of no less than ten drops of blood. In the directions for the bacteriological examination of the blood the only method suggested for obtaining the blood is by simple puncture of the sterilised finger or ear, but blood for cultural purposes is now almost invariably withdrawn from a vein by means of a sterile syringe. There are short chapters on the examination of water (under this head the bacillus typhosus and the bacillus coli are studied), air, and soil. The book ends with a useful tabular statement of the organisms usually found in affections of the respiratory, digestive, genito-urinary, and nervous systems.

The work probably serves a useful purpose in relation to the practical course of which it is a *résumé* and certainly contains a very good account of the current views on immunity, but there is no reason why it should displace the excellent works on clinical bacteriology which are at present at the disposal of the English student or practitioner.

Bacteria in Milk and its Products, designed for the Use of Students in Dairying and for all others concerned in the Handling of Milk, Butter, or Cheese. By H. W. CONN, Ph D, Professor of Biology, Wesleyan University. With 43 Illustrations. London: Rebman, Limited. 1903. Pp. 306 Price 6*s.* net.

WE have already welcomed a work on "Agricultural Bacteriology" by this author and the present volume is characterised by the same directness of aim, practical nature, and clear separation of facts from probabilities which marked the previous book. The title-page indicates those for whom the work is intended, but in addition it will be useful to boards of health and sanitary officers who are interested in the connexion between milk and disease.

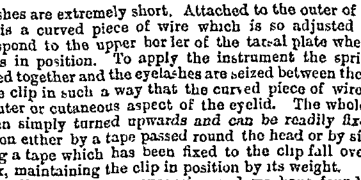
After a short preliminary chapter on the Nature of Bacteria the sources from which these organisms gain access to milk are dealt with and the means by which contamination may be kept within bounds. Keeping strictly to practical methods the author holds that with *ordinary precautions* the number of organisms in milk at the dairy can be reduced to 1000–5000 per cubic centimetre. The typical milk bacteria, and those which produce objectionable changes in that fluid, are then studied and there is a short account of the various dietetic products of the alcoholic fermentation of milk with an appreciation of their value. The changes in the number and character of the organisms of milk produced by temperature and time are described, and in Chapter V. there is a well-balanced account of the pathogenic organisms found in milk and their influence on the spread of disease, together with some useful hints on the methods to be employed in the study of milk epidemics. How the consumer of milk products is to be protected by sanitary regulations, by methods of purification, and by methods of sterilisation or pasteurisation is considered in detail. Purity of milk really resolves itself into a matter of expense and regulations are required to protect the poor. The work being designed as much for dairy workers as sanitarians a considerable part of the book is taken up by a consideration of the relations of bacteria to the processes of butter and cheese making. Curiously enough, it appears to be the oleomargarine factors who have paid most attention to the bacteriology of butter.

A final section is devoted to a short account of methods of analysis, in which attention is drawn to the conclusions which are yielded by a rough qualitative separation of the micro-organisms present into "acid producers" (lactic), gelatin liquefiers (enzyme producers), and others. Attempts to determine the absence of pathogenic bacteria except in quite exceptional circumstances are regarded as useless. The general appearance of the book is satisfactory but a reference number on page 66, line 16, is omitted and there are some very curious divisions of words allowed by the printer. This work cannot fail to be of interest and use to those who are concerned with the production, distribution, or regulation of milk and its products.

New Inventions.

A SIMPLE EYELID EVERTER.

THE recent extension of the application of the x rays to the treatment of trachoma necessitates, of course, the eversion of the eyelids during the exposure of the patients to their influence. This can be done in the usual manner, but it has the grave disadvantage that the hands of the operator are of necessity exposed also, and it is to obviate this that we have devised the simple appliance represented in the accompanying illustration. This enables one to evert the eyelids without contaminating the hands with the discharge —a distinct advantage considering the infective nature of the condition—and to maintain the eyelids in the everted position without in any way exposing the hands of the operator. It will be seen that the instrument consists of a spring ending in two jaws coated with india-rubber and curved to correspond to the curvature of the palpebral margins. These serve to grip the eyelashes and the india-rubber coating enables them to do this even in those cases in which the eyelashes are extremely short. Attached to the outer of these jaws is a curved piece of wire which is so adjusted as to correspond to the upper border of the tarsal plate when the clip is in position. To apply the instrument the spring is pressed together and the eyelashes are seized between the jaws of the clip in such a way that the curved piece of wire is to the outer or cutaneous aspect of the eyelid. The whole clip is then simply turned upwards and can be readily fixed in position either by a tape passed round the head or by simply letting a tape which has been fixed to the clip fall over the vertex, maintaining the clip in position by its weight.



The clips are very inexpensive and we have found that they are very comfortable to the patients. The india-rubber can be readily renewed and the whole can be easily sterilised by boiling. They have been made for us by Messrs. Harry Cox, Limited, of Cursitor-street, from whom they can be obtained.

A. D. REID, M.R C.S. Eng,
Radiographer to King's College Hospital and to the Evelina Hospital for Sick Children.
ARTHUR EDMUNDS, B S. Lond., F.R.C.S. Eng.,
Sambroke Surgical Registrar, King's College Hospital.

THE BRITISH MEDICAL ASSOCIATION

MEETING AT SWANSEA.

THE SECTIONS.

MEDICINE.

Friday, July 31st.

Dr. R. J. M. **Buchanan** (Liverpool) opened the discussion on

Susceptibility and Infection.

After tendering his apologies for any shortcomings in his remarks on account of the shortness of the notice received he said that he would approach the subject mainly from its clinical and practical aspect. He considered natural resistance and its opposite susceptibility to infection to be distinct potential and vital phenomena. Immunity might be defined as resistance to a disease and there was a difference between immunity to the bacilli and to their toxins, just as there were pure bacterial infections and bacterio-toxic infections, though no hard-and-fast line could be drawn between them. The phagocytic theory of Metchnikoff and its readjustment to more recent theories were discussed. Reference was made to the action of leukæmic blood on bacteria. In natural resistance the alexins were to be regarded as protective agents by virtue of the dissolution of organised foreign substances which they normally effected, whether they were foreign red blood corpuscles or bacteria. Increase of resistance, general or local, mainly depended upon hyper-leucocytosis and methods of increasing natural resistance by production of hyper-leucocytosis were referred to. The natural resistance against toxins was regarded as a means by which the alexins and phagocytic cells were enabled to act protectively. In reference to acquired susceptibility Dr. Buchanan emphasised the importance in medical practice of recognising the part played by such adverse conditions as starvation and bad diet, exposure to heat, cold, and moisture, fatigue, and diseased conditions as general interferences with resistance. The importance of recognising the rôle of mixed infections was discussed, with special reference to pulmonary tuberculosis. Professor Welch's hypothesis of reciprocal infection provided material for much serious thought. Recognising in cultures of pathogenic bacteria intracellular and extracellular poisonous substances Dr. Buchanan asked—Were the bacteria while manufacturing these toxins living under conditions normal to them? Did the culture media contain the very substances which provoke the bacteria to form such toxins and immunising bodies? Had they any certain proof that bacteria living in conditions natural to them produced any such toxins at all? The possibility of reciprocal infection between different species of bacteria was pointed out. Assuming the possibility that under conditions natural to them bacteria did not produce poisons, Dr. Buchanan suggested that in a case where an animal was naturally immune to a specific bacterial invasion there would be nothing in its tissues or body fluids which affected the bacteria in any way. On the other hand, should any alteration of these tissues and fluids have taken place before invasion, conditions arose which acted upon the bacteria to make them offensive factors—in fact, the determination of the disease was dependent not upon the invasion of the bacteria alone but upon the action upon them of the tissues and fluids of a body antecedently deranged. Or both host and bacteria might be in an abnormal state prior to their meeting. When the question as to how bacteria brought about disturbances of the body metabolism was considered it should also be remembered that bacteria did not always effect this change and that disturbances of metabolism had probably existed previously and might have been a causal agent. The immunising power of human milk was referred to and it was suggested that the susceptibility to tubercle in hand-fed infants might thus be accounted for, the cow being a susceptible animal. In conclusion, Dr. Buchanan discussed the question of racial and individual resistance and susceptibility relative to inheritance.

Dr. A. **McPhedran** (Toronto) took exception to the statement that the natural resistance varied with the natural vigour of the individual. Were not strong, vigorous young men very prone to contract enteric fever? He would also like to ask Dr. Buchanan how the well-known efficacy of the inoculation of erysipelatous streptococci as a treatment for malignant disease was to be explained.

Dr. D. C. **McVail** (Glasgow) referred to patients apparently in the highest bodily vigour attacked with tuberculosis and other diseases. Might it not be a chemical change which constituted susceptibility as in the culture media used in the laboratory? A closer study of the culture bases on which bacteria throve might in the future elucidate this problem.

Dr. G. **Parker** (Bristol) communicated

A Case of Bronzed Diabetes.

The patient, a man, aged 65 years, suffered from diabetes for five months before his death from coma. During life definite greyish-brown pigmentation was noticed on his face, trunk, and limbs, but not on the mucous membranes. The urine did not average more than 50 ounces daily and before the onset of coma it contained no acetone or diacetic acid, but about 5½ per cent. of sugar. At the post-mortem examination besides pigmentation of the skin and muscles there was very marked hypertrophic cirrhosis of the liver and to some extent of the pancreas and spleen. All these organs, as well as the lymphatic glands, were so infiltrated by a pigment containing iron that they were of a deep brown colour, changing to a brilliant blue after treatment with hydrochloric acid and ferrocyanide of potassium. Sections showing these changes were exhibited in the room and the liver and pancreas were placed in the museum. The intestines after removal quickly turned to a dusky metallic grey. This disease was at first thought by Hanot, Marie, and others to be a complication of diabetes, but the view was gaining ground that it was a form of toxic cirrhosis in which hæmoglobin was changed to hæmosiderin and retained in the body, while diabetes came on in a proportion of the cases either from irritation of the suprarenals or from cirrhosis of the pancreas.

Dr. **McVail** read a paper on

The Treatment of Uræmia by Spinal Puncture.

Œdema in acute renal affections developed suddenly and was universal and the connective tissue in the brain was involved in the general œdema. There was thus produced a condition of increased intracranial over-pressure, as the cranium was an undilatable chamber. Convulsions and coma occurring in connexion with albuminuria had very generally been regarded as the effects of uræmic poisoning, but Dr. McVail had for some years been in doubt as to the truth of this poisoning theory. In his view they were due to the increased intracranial pressure and if the symptoms of convulsions and coma in renal disease were due to intracranial pressure that pressure would obviously be lessened by puncture and drainage of the spinal arachnoid space. In 1900 and again in the present year of 1903 he had had the opportunity of practically determining this question. In the first of these years a patient with acute albuminuria and œdema, after severe intracranial pain followed by convulsive attacks repeated during 30 hours, had become almost blind, and notwithstanding free perspiration by hot-air baths and pilocarpine he became comatose The operation of spinal puncture was performed at Dr. McVail's request by Dr. D. N. Knox. The spinal fluid fell in drops from the cannula for three-quarters of an hour and then the cannula was withdrawn. In all about six drachms of fluid escaped, the patient being entirely unconscious and no anæsthetic being required. Within four hours the patient began to regain consciousness and his sight commenced to return. He slept a natural sleep during the night and awoke in the morning entirely free from pain or mental dulness or confusion and with perfect vision. No more fits occurred. The urine rapidly increased in amount, the albumin rapidly diminished, the œdema disappeared, and he left the hospital some weeks afterwards with only a trace of albumin present in the urine. The second case was that of a man in whom albuminuria had quickly developed with moderate œdema of the surface. In a few days he had become mentally confused and he was still mentally confused when he was taken to the Royal Infirmary, Glasgow. His urine contained a large amount of albumin. Hot-air baths and pilocarpine produced free perspiration, but without benefit to his cerebral state, and 36 hours after admission the comatose condition was deep. Dr J. Patrick performed spinal puncture and fully an ounce of fluid escaped. Again, as in the first case, at the end of *about four hours consciousness began to return and he made* a good recovery The result of the spinal puncture in these two cases proved, in Dr McVail s opinion, that the pain, the convulsions and the coma of acute albuminuria were due in many, if not in all, instances to the sudden increase of intracranial pressure and not to uræmic poisoning of the nerve centres They further proved that this increased intracranial pressure might, in at least some instances, be effectually relieved by spinal puncture

Dr T N KELYNACK (London) and Mr SYDNEY R WILLIAMS (Bristol) communicated a paper on

The Comparative Value of Oral and Rectal Temperatures in the Study of Pulmonary Tuberculosis

The conclusions arrived at were based upon 17 420 observations in 300 different cases, in all stages and of every variety of tuberculous disease of the lungs It was shown that in a healthy adult during rest the rectal temperature was normally a little less than 1° F higher than the oral, but after exercise the rectal temperature was raised from two to three degrees. After a man had played an hour at lawn tennis, for instance, the rectal temperature would rise from 99° to 101 4°, though in the same circumstances the oral temperature had only risen from 98 4° to 98 6° These normal or physiological variations in the temperature in the rectum deserve careful attention In 38 per cent of the patients examined the rectal temperature bore no constant relation to the oral In 11 3 per cent the rectal reading maintained a more regular range than the oral In 1 3 per cent of the cases the rectal temperature was constantly from one to two degrees above the oral record Generally speaking, the discrepancies between oral and rectal temperature had been most apparent in patients with a comparatively slight degree of pyrexia, while they had more closely corresponded when a conspicuous and persistent degree of pyrexia existed. The results of the investigation seemed to warrant the following conclusions 1 The temperature taken in the mouth during rest formed a trustworthy guide in the management of tuberculous cases under conditions of sanatorium life. 2 The temperature taken in the mouth during or shortly after, exercise could not be considered trustworthy unless accompanied by such precautions as militated against their general practical applicability 3 The temperature taken in the rectum during red higher than in the mouth afford any special assistance in [illegible] cases 4 The temperature taken in the rectum during, or shortly after, exercise in both healthy and tuberculous subjects registered a temperature considerably higher than that in the mouth, and whilst in the non tuberculous the return to normal was more rapid than in the tuberculous no special advantage for the latter appeared to accrue from this method

Dr CHOWRY MUTHU (Wells) read a paper on

The Treatment of Pulmonary Tuberculosis by Formaldehyde

The methods by which he had administered the drug were (1) by an inhaler, using a mixture of 40 per cent formalin one part, chloroform, one part, rectified spirit two parts with a few drops of liquor ammoniæ to neutralise the pungency, (2) by vaporisation, (3) by intravenous injection as suggested by Dr Robert Maguire, and (4) by electricity using Francisque Lôtte s method of transfusing formaldehyde by static currents of electricity The first and second of these methods were advocated as shortening the duration of the treatment As to the third and fourth methods it would Dr Muthu said, be premature to speak of any positive and definite results at present as the trials had not yet been sufficiently extended

Dr BUCHANAN remarked that before coming to a conclusion as to the value of formaldehyde he would like to compare cases which had been treated solely by this reagent with others treated in other ways

SUBSECTION OF ELECTRO THERAPEUTICS

WEDNESDAY, JULY 29TH

Dr H. LEWIS JONES (London), the President of the subsection, opened a discussion on

The Treatment of Malignant Diseases by Electrical Methods

He said It gives me great pleasure to open the proceedings of this subsection because I am sure we all feel that the occasion is one of note in the history of medical electricity in this country The establishment of a subsection for electro therapeutics under the auspices of the British Medical Association marks a stage in the advance of the subject in public interest and is a source of gratification, I feel sure, to all who have the interest of medical electricity at heart and to all those whose patient work for years past has helped to lay a firm foundation for the superstructure of the future I trust that this gathering may be the first of a long unbroken succession of meetings at which the inevitable advances of the science of electricity with their equally inevitable applications to medical science may be described and criticised, to receive judgment in accordance with their deserts The subject which is down for our consideration is one of the highest importance All over the civilised world just now men's *minds are being turned with fresh energy towards the* object of finding some means which can be used to check the advances of that group of disease which we know as malignant disease There is a feeling that in some way or other a cure might be found in spite of all failures of the past. In particular the newer discoveries of science are being examined by medical men and when any fresh fact seems to offer a clue the path which it indicates is being followed up minutely Medical men have always shown themselves ready to make a practical application of the discoveries of science Take, for instance the applications of the x rays The progress in this section has been almost purely a medical matter It is the medical profession which has provided the stimulus for the elaboration of x ray machinery and methods and has accounted for the astonishing development of Professor Roentgen s discovery So too with the alternating current supplied in towns for electric lighting No sooner was this type of current supply available than its therapeutic possibilities were being examined and applied by medical men, with the result that it is now a thoroughly recognised method of medical treatment and is filling its own proper corner in the field of electro therapeutics, so also with the high frequency group of phenomena the phenomena of condenser discharges as in the Leslie Miller lamp, and the phenomena of radio activity—that newest development of chemical science. The grievous nature of cancer and the distress of mind from which its victims suffer make it a subject which must be discussed without enthusiasm The discredit which has attached to the cancer curing impostors of the past will deservedly be ours unless we are particularly careful to keep rigidly within the bounds of observed facts In a semi public assembly like the present one we must be excessively careful to avoid anything like over statement of the case The line which I believe we can most advantageously follow to-day will be that of relation of cases and the discussion of practical points—such as the best sort of tube the best time or exposure the number of applications which has been found most suitable, and so on First let us examine the observed facts upon which there is now a general agreement of opinion among x ray workers—namely, (1) that in rodent ulcer a satisfactory result may be often observed, (2) that healing of an ulcerated cancerous surface has been observed in a certain portion of cases, (3) that relief of pain in cancer is a fairly common experience, and (4) that superficial nodules undoubtedly cancerous in nature will sometimes decrease notably in size under x ray treatment This is the groundwork upon which we hope to be able to build but the edifice is not yet built, nor do we even know whether we shall ever advance much further Having reached our present position we are searching I might say groping in the dark for a fresh clue to enable us to progress another stage What direction shall we take? Shall we use hard tubes soft tubes or medium tubes? Shall we operate our tubes with the anti cathode red hot or cool? Shall we have the tube close to the part or remote from it? Do we desire a reaction of dermatitis or do we need to avoid it carefully? No one knows, though some of us have opinion Only a sifting of cases and a comparison of results will in time teach us whether these points matter or not If we have no successes to relate let us tell of our failures and try to learn from them The successful treatment of rodent ulcers by the x rays is now sufficiently established for us to leave it on one side at present I do not mean that there is no more to learn about this particular disease but that the points not yet worked out are such as may be left for the present to individual investigators. I would suggest, therefore, that to day we should limit our remarks to cases of undoubted sarcoma or carcinoma. If it were possible to do so we would choose to begin in the case of carcinoma with simple superficial epithelioma, as for example, epithelioma of the lip in its earliest stages. If in such cases it could be satisfactorily established that a complete disappearance of the growth followed the treatment, it would be reasonable to advance to the more difficult problems of deeper growths. Unfortunately, these are just the cases which we cannot as yet obtain. Naturally the surgeon who feels that an immediate cure can be secured by a prompt operation is reluctant to run the risk of sacrificing his patient's chances by any procedure which involves delay. His attitude is not likely to change until it can be shown that the results of treatment by the x rays are as good as those now obtained by excision. That is the position of affairs to-day and the only material which is available for the study of the effect of the x rays upon malignant disease is among cases which are too extensive or too deeply seated for the surgeon to be able to touch them. Naturally this complicates matters a good deal and adds very greatly to the difficulties of the position. In spite of these difficulties cases have been recorded which show that the progress of epithelioma can be profoundly influenced by the application of the x rays. Even if we pass over partial successes *and consider only such as are complete we find some* satisfactory evidence to support us. Macintyre of Glasgow has recorded a case of epithelioma which filled the nasal cavity; eight months later the whole neoplasm had disappeared under x-ray treatment. The diagnosis of the case was confirmed by microscopical examination. In looking through the published records of the use of the x rays in cancer one cannot help feeling surprised to find how few of the alleged successful cases have been so recorded as to carry to those who read a reasonable conviction of success, and this, too, in spite of the fact that numbers of people are working at this subject, and scores, if not hundreds, of cases have been treated. Half a dozen cases of unmistakeable cure of undoubted cancer, if minutely reported, would be worth more just now than any number of vague statements about partial improvement, favourable effects, and the like. The more one examines the published cases the more suspicious one becomes. In most of them there is some flaw in the evidence. Either the diagnosis is uncertain or the patient is not more than partially relieved at the time of writing or he has been so unfortunate as to die from some intercurrent disease. It is greatly to be wished that all medical men who have recorded favourable cases will periodically supply further notes of the later progress of their patients. In short, while there is a quantity of evidence to support the contention that the x rays act beneficially in malignant disease the amount of evidence to show that cures have resulted is lamentably meagre. What can be the explanation of this? Here is an agent which very commonly gives relief to some of the symptoms produced by a malignant growth and yet fails to give as much relief as is really required. Is it because of some defect in our technique, or is it because the cases subjected to x-ray treatment are ill chosen, or, finally, is it from some inherent defect of the method of a fundamental kind? This is the crux of the situation. First as to technique. Have we yet to discover that some tubes only emit the right kind of x ray? Have we to use our tubes differently? or do we fail from insufficient perseverance? The nature of the tube, the degree of penetration of the rays which it gives off, the proximity of the tube to the affected part, the production of a reaction or not, are all points on which further knowledge is wanted. Already there is a divergence of opinion as to the need for a dermatitis or not, for while some observers think that the good effect is in proportion to the amount of dermatitis, others hold a quite opposite view. Secondly as to the selection of cases. Most of us will agree that the cases hitherto submitted for x-ray treatment have been of the most unpromising character. Most, if not all, of them have been of a kind which were already too advanced to be other than practically hopeless from the first. And whereas the failure has usually been from the reappearance of the disease in a vital organ remote from its original seat, the application of the x rays has so far justified their employment by improvements at the place to which they were applied. Thirdly, as to inherent defects in the x-ray method. It may be that all our efforts will be in vain because of this; but until the method has been tried for simple cases at an early stage we cannot abandon our attempts. In my opinion the proper course to adopt would be to start the x-ray treatment as soon as possible after the removal of the primary growth by the surgeon and not to wait until recurrences have seriously spoiled the chances of success. I would avoid all masking of the surrounding parts by impervious screens for fear lest the screens should shield some foci of disease. It is probable that the use of lead screens have contributed a good deal to the failures of the past. I would use a medium tube and would prefer to operate with a hot anti-cathode. I would avoid dermatitis by arranging the exposures suitably and I would continue the treatment with occasional breaks for three, four, or five months. In conclusion, it is necessary to speak of other proposed electrical methods—namely, the high-frequency method and the use of the static machine. Both of them have been tried and both have had some slight success to show. In both methods there is a common factor—namely, the presence of cathode rays—and it seems to me possible that these may require further examination. Curiously enough, radium has lately been tried for the relief of cancer and cases of its favourable action have been mentioned. The rays emitted by radium are of two kinds, one apparently identical with the x rays and one with the cathode rays, and it may be that the combination of the cathode rays with the x rays has *some special advantage.*

Mr. J. F. HALL-EDWARDS (Birmingham) continuing the discussion said that the failures so far noted were largely due to the extremely unfavourable character of the cases submitted to the treatment. He had no doubt at all that cases of early epithelioma of the surfaces of the body could be cured by the x rays in a satisfactory manner. As to internal cases he had treated a case of cancer of the rectum by applications to the sacral region, and his patient was alive still after three years had elapsed and the growth had diminished in size. He had often noticed that with the appearance of a dermatitis the patient began to feel better. He would like to know whether the use of the x rays did harm in some cases by leading to the liberation of toxins during the process of regression of the tumours under treatment. He agreed in preferring a medium tube with a hot anti-cathode. He insisted less now than he had formerly done on the necessity for producing a sharp dermatitis.

Mr. CHISHOLM WILLIAMS (London) had obtained good results from the use of the high-frequency machine. His method was, he believed, very important if successful results were to be obtained by that apparatus. He used an electrode of glass tube so exhausted as to emit x rays. Its vacuum could be judged by seeing whether the wall of the tube emitted a green phosphorescence. If it did this x rays were being produced. There were present, therefore, x rays, cathode rays, ultra-violet light, and general electrification. The tube could be put in contact with the patient and x-ray burns were not at all likely to result. He had obtained marked relief in many cases but had no complete cure to record as yet.

Dr. C. H. ALLFREY (St. Leonards) suggested that drugs might be employed together with the electrical treatment; possibly iodide of potassium might be useful to remove the products of the breaking down of the growths.

Dr. HORACE MANDERS (London) had tried experiments with the high-frequency current, using vacuum electrodes of blue glass, particularly of cobalt glass. He advised the study of the pulse tracings during and after treatment, also a careful examination of the urine.

Dr. LOVELL DRAGE (Hatfield) had found benefit in many cases of malignant disease from the use of cinnamate of sodium as a hypodermic injection; he thought that this method might give improved results if combined with the electrical treatment. The effect of cinnamate of sodium had been surprisingly good in some of his cases.

Among other matters touched on was Radium and its Possible Therapeutic Uses. It was pointed out that radium had one valuable quality which would help in proportioning the times of exposure—namely, that its radiations were uniform in strength.

The PRESIDENT, in closing the discussion, said that several valuable points had been elicited by the debate. He believed that the vacuum electrode used with a high-frequency coil might develop into a useful instrument. The diffused x rays offered some advantages, particularly in the diminished risk of x-ray burns, and it was highly probable that the coexistence of cathode rays around such a tube might be useful. He had treated a patient after an operation for the removal of a recurrent carcinoma in the glands of the neck with the object of preventing a further recurrence. After three months of mild x-ray treatment the scar of the operation wound began to feel hard and it was again excised. A microscopical examination showed the presence of a few cancer cells, much fibrous tissue, and some extravasated blood corpuscles, and the pathologist who reported on the specimen was doubtful as to its exact character. The specimen removed at the preceding operation was of typical carcinoma, rich in cells. The x rays seemed, therefore, to have influenced the growth and to have altered its character in a favourable direction. He thought that a more vigorous application of the rays might have been successful in preventing the reappearance. He hoped that the subject of x-ray treatment for malignant disease would again come before the Subsection of Electro-therapeutics in 1904 and that further advances might by that time have been achieved.

THURSDAY, JULY 30TH.

Mr. CHISHOLM WILLIAMS opened a discussion on

The Treatment of Tuberculous Diseases by Electrical Methods.

He said that he had treated 43 cases of pulmonary tuberculosis by high-frequency methods. After two years 40 patients were living, though one was now very ill with tubercle of the urinary tract. An examination of the sputa showed an increase of bacilli for a time followed by a decrease. It was also common for the patients to have a distinct rise of temperature for a few days. As soon as this subsided the patients showed manifest improvement. In tubercle of other regions of the body the results at present were uncertain. In lupus the high-frequency treatment by the high vacuum glass tube was very satisfactory.

The PRESIDENT having pointed out that the discussion might be conveniently arranged under the heads of pulmonary tuberculosis, tubercle of other organs, and lupus, most of the later speakers dealt mainly with lupus.

Dr. P. S. ABRAHAM (London) expressed a preference for the x rays in the treatment of lupus and pointed out the peculiarity that cases apparently identical might behave quite differently under apparently identical treatment.

Dr. J. S. BOLTON (Nottingham) recounted his experiences in pulmonary tubercle and thought that the high-frequency treatment had a bad effect if applied to subjects in whom a hectic temperature existed.

Dr. V. RUTHERFORD (London), Dr. R. B. McVITTIE (Dublin), Dr. H. H. HULBERT (Bexhill-on-Sea), and Dr. JOHN HADDON (Denholm, N.B.) also spoke.

Mr. HALL-EDWARDS read a paper on Some Points in X-ray Therapeutics and Mr. W. K. WILLS (Bristol) showed a Modification of the Leslie Miller Lamp, in which the iron discharging points were altered to carbon with iron cores.

FRIDAY, JULY 31ST.

Dr. J. C. FERGUSSON (Great Malvern) read a paper on High-frequency Currents as a Remedy for some Forms of Deafness.

Dr. DONALD BAYNES *(London)* read a paper on the Treatment of Painful Amputation Stumps by Electricity.

Dr. W. S. HEDLEY (London) contributed a paper on Practical Muscle-*testing which was read by the Secretary.*

Dr. BOLTON opened a discussion on X Rays in the Diagnosis of Thoracic Disease.—Dr. W. H. I. SELLERS (Preston), Dr [illegible] an [illegible] an [illegible]

OBSTETRICS AND GYNÆCOLOGY.

FRIDAY, JULY 31ST.

Mr. J. H. TARGETT (London) opened a discussion on

The Diagnosis and Treatment of Tuberculosis of the Uterus and Adnexa.

He said that *it was not until 1886 that attention was drawn* by Hegar to the importance of this affection; in 1894 Whitridge Williams gave a good account of it and at the Fourth International Congress of Obstetrics and Gynæcology held in Rome in 1902 the subject was fully discussed. In the post-mortem records of Brompton Hospital it was shown that in 6 per cent. of tuberculous females there was disease of these organs. The number of cases in which the disease was primary and limited to the genital organs was much smaller. The modes of infection were: 1. By the blood stream, the seat of original infection being in the lymphatic glands, particularly the bronchial. The tubes were readily infected. 2. By the peritoneum, either from general miliary tuberculosis of the peritoneum or from localised disease due to ulceration of [illegible] fluids in the peritoneal ca[illegible] through the abdominal ost[illegible] found in 50 per cent. of the cases of tuberculous peritonitis. 3. By direct infection from the neighbouring organs—i.e., the ileum, the rectum, and the bladder. 4. From sexual intercourse; this could not be denied, though it was very rare. Tuberculosis of the glans penis was excessively rare and the infection must come through the semen. The forms of tuberculous disease met with were: 1. Acute [illegible] pyosalpinx might develop. 2. Caseous salpingitis. 3. Tuberculous pyosalpinx. The peculiarities of this form of pyosalpinx were (1) that the fimbriæ were present; (2) the contents were honey-like and often sterile bacteriologically; and (3) there was absence of *adhesions and in consequence* twisting of the pedicle sometimes occurred. Tuberculosis of the body of the uterus might be diffuse miliary and non-*ulcerative, or granular, friable, and caseous; or there might* [illegible] history, particularly with reference to any tuberculous disease, was very important. The absence of any apparent cause was suggestive; thus pyosalpinx in the virgin was almost always tuberculous. It was formerly taught that amenorrhœa was present, but further experience had shown that this was not so. Dysmenorrhœa was a common symptom. As regarded pain it might be stated generally that this was not present unless other organisms were associated with the tubercle bacillus. Large pyosalpinx without pain, especially without recurrent attacks of pain, was usually tuberculous. When the disease affected the body of the uterus there were bacilli in the discharge or in curettings, but in about 1000 specimens from curettings which he had examined he had found tubercle in only seven. *In the treatment of the* disease laparotomy was very beneficial. When the operation was performed for tuberculous peritonitis and thickened tubes were found *these should be removed*; but he had seen some cases where rapidly fatal results followed interference, in one case in 12 hours and in another in 24 hours, and he doubted the *wisdom* of removing very adherent and caseous tubes, though there was no doubt of the advisability of removing tuberculous pyosalpinx. At the close of his remarks Mr. Targett gave a lantern display of a series of 18 very fine photographs of specimens of tuberculous disease of the uterus and adnexa.

Dr. J. A. C. KYNOCH (Dundee) then read a paper on

Primary Tuberculosis of the Uterus (Cervix).

There were, he said, three forms: (1) ulcerative, (2) miliary, and (3) papillary. The last extended on to the vaginal portion; there was no friability but the growth bled readily on examination. There was menorrhagia or amenorrhœa, the former *occurring* in the early cases and the latter in later ones. Hysterectomy was performed, curetting not being sufficient on account of the possibility of infection of the uterus.

Dr. ARNOLD W. W. LEA (Manchester) read a paper entitled

Five Cases of Tuberculous Disease of the Tube treated by Operation.

He said that the diagnosis of removed specimens should never be made without a microscopical examination, as nodules having a naked-eye resemblance to tuberculous nodules were sometimes met with in other conditions. In two of his cases no other part of the body was affected; in only one was the ovary affected. The symptoms included pain which was a marked feature; the effect on menstruation varied. It was never possible to rely on the presence of bacilli in [illegible] important [illegible] temperat[illegible] developm[illegible] of the operation was [illegible] to ligature by sections across the broad ligament, and afterwards to suture the peritoneum over. If drainage was used it should be per vaginam.

Dr. **HERBERT SNOW** (London) thought that congestion of the pelvic organs produced by corsets favoured the development of tubercle. He advocated milder methods of treatment than hysterectomy.

Dr. F. W. N. **HAULTAIN** (Edinburgh) said that in operating for tuberculous peritonitis they should pay particular attention to the tubes. In regard to the diagnosis of tuberculosis of the tubes dysmenorrhœa was the most constant symptom. He narrated a case of tuberculous disease of the cervix and showed a drawing of the condition. The patient, a single woman, *virgo intacta*, had had a discharge for seven years. She had a peculiar soft growth of the cervix which was not bleeding on examination but had a bluish colour. Supravaginal amputation of the cervix was performed and on microscopic examination the growth proved to be tuberculous.

Dr. E. J. **MACLEAN** (Cardiff) narrated a case of tuberculosis of the tubes in a patient, aged 34 years, who had been married four and a half years and was sterile. She had suffered for four months from pelvic pain, dyspareunia and definite pain referred to the umbilical region, menorrhagia, and leucorrhœa. There was a swelling in the pouch of Douglas. At the operation both tubes were found studded with tubercles and containing caseous matter. The adnexa were non-adherent. The right ovary contained a cyst of the size of a walnut. Both the tubes and the ovaries were removed and the patient became strong and gained flesh after the operation.

Dr. C. R. **STRATON** (Salisbury) narrated a case of tuberculous disease of the cervix and the vaginal wall apparently due to infection from the patient's husband who was suffering from renal tuberculosis.

Mr. **TARGETT**, in reply, said that the x-ray treatment was not likely to do good in tuberculous disease of the cervix, as all specimens showed deeply placed nodules. He did not advise removal of the uterus with the tubes. It was doubtful whether the pure tubercle bacillus was a pyogenic organism, and when pus was present he would always suspect that other organisms were present. He had met with two cases of tuberculous peritonitis in which tubal gestation had occurred.

Dr. A. H. N. **LEWERS** (London) communicated a paper (which was read by the Vice-President) entitled

A Case of Hairpin in the Uterus discovered by the X Rays.

The patient went to the London Hospital and said that she was pushing in the hairpin in order "to open an abscess" when it disappeared. On examination there was some blood-stained discharge but nothing could be felt of the pin. The uterus and the bladder were examined by the sound with negative results. A radiograph taken by Mr. **HANNAN** showed the hairpin distinctly lying with its points downwards. Under anæsthesia the cervix was dilated with Hegar's dilators and each point of the hairpin was seized with a Spencer Wells forceps and the pin was extracted. There was also found a mass of placental tissue of the size of a walnut but no fœtus. The patient became very ill after the operation, having a rigor and a temperature of 106° F. Subsequently pelvic cellulitis and suppuration in the left thigh developed, the latter necessitating incision. An incision was also made into the vaginal roof and pus was evacuated. Ultimately, however, she completely recovered. Reference was made to the literature of the subject of foreign bodies in the uterus. Negebauer had recorded 74 cases and of these 16 were due to hairpins. This was the first case recorded in which the diagnosis had been made by the x rays.

A vote of thanks to the President (Professor W. Stephenson (Aberdeen), proposed by Dr. **HEYWOOD SMITH** (London) and seconded by Dr. F. J. **MACAN** (London), concluded the proceedings of the section.

STATE MEDICINE.

THURSDAY, JULY 30TH.

Dr. **JOSEPH GROVES** (Isle of Wight) contributed a paper upon

Security of Tenure for Medical Officers of Health

in which he discussed the anomalous position of the provincial medical officers of health and advocated for them the same security against capricious dismissal or non-re-election as that which had already been conceded to the metropolitan and the Scottish medical officers of health and to the Poor-law officers in England and Wales. He quoted the opinions of many Members of Parliament on the subject, including that of Sir Walter Foster who, when Parliamentary secretary of the Local Government Board, said that the Board considered appointments for short periods and precarious tenure injurious to the public health.

Mr. **HERBERT JONES** (Hereford) pointed out that it was principally through the report of the medical officer of health that the Local Government Board could ascertain whether the Public Health Acts were being properly administered and there was a distinct Gilbertian humour in the readiness with which a medical officer of health could be got rid of by a defaulting sanitary authority whose inactivity he had merely mentioned in his annual report.

Dr. F. J. H. **COUTTS** (Blackpool) and Dr. A. E. **MOIZ** (Gower) agreed with the views of the previous speakers and the **PRESIDENT**, Dr. J. C. **MCVAIL** (Glasgow), said that it must be extremely difficult to produce an argument in favour of the existing conditions. The medical officer of health being constantly in opposition to someone needed security far more than did the Poor-law medical officer.

FRIDAY, JULY 31ST.

Dr. F. G. **BUSHNELL** (Plymouth) contributed a paper on

Ministries of Public Health

in which he advocated the establishment of a Ministry of Public Health based on the expanded medical department of the Local Government Board in coöperation with the General Register Office and having associated with it a consulting body of eminent representative members of the medical profession, including the Presidents of the Royal Colleges of Physicians of London and Surgeons of England. He thought that the Minister at the head of this new department would best serve the interests of public health if he did not go out of office with every change of the Government and was summoned only to those meetings of the Cabinet which were concerned with the work of his department.

Mr. H. H. **TIDSWELL** (Cardiff) thought that general practitioners might do more in furthering public health questions among their working-class patients. He would like to see more medical men appointed as assistants to medical officers of health.

Dr. **GROVES** spoke of the non-appreciation of the work of the Local Government Board in high quarters and said that medical officers of health were handicapped by an insufficiency of inspectors.

Mr. H. **D'ARCY ELLIS** (Stourbridge) thought that the public health service might be organised on the lines of the Factory Department of the Home Office which had done remarkably good work since Dr. B. A. Whitelegge had been chief inspector. He was of opinion that medical officers of health did not receive that support from the Local Government Board which they were entitled to expect.

The **PRESIDENT** said that the question of the appointment of a Minister of Public Health had been before the country for at least 20 years and there was no doubt that inquiry into the public health administration of England and Wales was necessary in view of the introduction of a new Public Health Bill before very long.

Mr. **TIDSWELL**, in introducing a discussion on

Physical Degeneration in Children of the Working Classes,

said that his object was to draw attention to certain physiological influences which, he considered, were responsible for the nervous restlessness and waywardness so characteristic of the children attending public elementary schools. There was, in his opinion, some factor having a bad influence on the health of children which did not exist before the Education Act of 1870 came into force. The system of cram was turning children into talking machines, and in injuring their reasoning powers it was both demoralising and degrading, and was calculated to render the judgment unstable and capricious and to interfere seriously with the mental and moral equilibrium. He advocated the entire abolition of corporal punishment in schools and urged the systematic inspection of all schools by a medical officer attached to each school who should see every class as it assembled with a view to detect infectious and other diseases in their early stages and who should examine the eyesight, the teeth, the hearing, and the general condition of the children and should visit any pupil at home in case of sudden illness.

Dr. **DAWSON WILLIAMS** (London) said that they required a definition of "physical degeneration" and asked whether the conditions which produced physical degeneration were more active now than they were formerly, for there was not any statistical evidence that the amount and degree of degeneration in the population were increasing. The practical question appeared to be whether the factors which tended to prevent adequate physical development could be removed. He hoped that the decline in the birth-rate would not be mixed up with the question of deficient physical development, for degeneration might begin in utero, and attention should be given to safeguarding the health of the mother during pregnancy. If there was an increased degeneration it might be due to the altered forms of food which were partaken of in towns and whether the use of starchy foods for infants had increased or not it was certainly excessive He believed that the defects in the diet of infants caused a condition of defective nutrition which accounted for not only physical mal-development but imperfect or retarded cerebral development which was the cause of what was called over-pressure. He thought that it was a mistake to use the terms "mind" and "brain" as interchangeable, for the mind could not be tired but the brain when tired was obliged to rest. He agreed with Mr. Tidswell that medical inspection of schools was desirable but he doubted whether it would be proper to follow the children to their homes

Mr. J. M. MACKENZIE (Kirkby-in-Ashfield) thought that physical degeneration was partly acquired and partly transmitted. He was of opinion that medical men could not deal with the question alone but must call to their aid both the parson and the schoolmaster.

Mr. JOHN STRACHAN (Dollar) protested against children being required to do a large amount of work at home in addition to their lessons at school and pointed out that those who did the best at school often had a larger proportion of work at home

Dr. H. W. LANGLEY BROWNE (Dudley) considered that the medical profession were to blame in not calling the school *master more often to their aid He did not think that the* medical officer of health or the medical officer to a school should visit children in [illegible] the alien immigration was [illegible] ough he considered that the [illegible] was the food question.

Dr GROVES looked to syphilis as one of the greatest causes of physical degeneration and deplored the repeal of the Contagious Diseases Acts.

The PRESIDENT said that if physical degeneration were so pronounced as had been maintained it would surely have had some effect upon the death-rate, whereas the death rate had gone down. He considered that children should be allowed to grow up more naturally, for they were often living and breathing in places and under conditions which were deleterious to their health, although those conditions could be altered at little or no expense. He approved of the medical examination of children in schools.

Mr. W. JONES MORRIS (Portmadoc) contributed an exhaustive paper upon

The Housing of the Working Classes in Small Municipalities

in which he detailed the action which had been taken in the town of Neath for the provision of workmen's houses He urged the erection by municipalities of model houses which should act as types for the private builder to follow

The lateness of the hour prevented any discussion upon this paper.

PSYCHOLOGICAL MEDICINE

WEDNESDAY, JULY 29TH

Proceedings in this section were opened by an Address [illegible] IONS which was pub [illegible] p 366 [illegible] logist to the Scottish Asylums, then opened a discussion on

The Pathology of General Paralysis

He stated that the pathogenesis of general paralysis was still unknown with anything like accuracy and that so long as this was so they had no right to conclude that the disease was incurable. The view that general paralysis of the insane was essentially syphilitic in origin, though held by the majority of neurologists at the present day, had never been proved; it was no more than a hypothesis Against the essentially syphilitic origin of general paralysis was the fact that many clinicians had seen and reported cases of general paralysis in which syphilis had not previously occurred and that numerous cases were now known in which syphilis was contracted after the onset of the symptoms of general paralysis The argument used to support the doctrine, "No syphilis, no general paralysis," based upon statistics showing a high percentage of antecedent syphilis in cases of general paralysis, was marred by a constant failure to take into account the fact that only a very small proportion of syphilitics ever became general paralytics or tabetics. Similar statistical evidence could be adduced showing that very high percentages of persons affected by tuberculosis had previously had measles Indeed, they knew that an attack of measles predisposed to tuberculosis, yet they did not on that ground conclude, "No measles, no tuberculosis" Moreover, the syphilitic hypothesis did not explain the clearly established fact that there were other conditions, such as chronic alcoholism, lead poisoning, and excessive meat diet, which favoured the development of general paralysis. Post mortem examination of the non nervous organs or tissues of the body in cases of general paralysis showed that an active bacterial toxæmia was present Dr. Lewis Bruce and Dr Robertson had directed attention to the gastro intestinal disorders that occurred in cases of general paralysis and had published their belief[1] that general paralysis was dependent upon a toxæmia of gastro-intestinal and bacterial origin, but Dr Bruce had since modified his view so as to regard toxic infection by the bacillus coli as a secondary or terminal infection and not as a primary cause of general paralysis More recently the hypothesis had been advanced by Dr. G D. MacRae, Dr John Jeffrey, and Dr. Robertson himself that general paralysis was the result of a chronic toxæmia dependent upon the excessive development of bacteria not only in the alimentary canal but in the nasal tract and throat, and especially upon the abundant growth of a diphtheroid bacillus which gave the disease its distinctive characters The recognised causes of general paralysis, such as syphilis, alcoholism, plumbism, and *excessive meat diet, acted as stimulants of the leuco*blastic tissue of the bone marrow or directly damaged this tissue, so that the defences of the body against the invasion of bacteria were diminished or damaged. The marrow cells (myelocytes) from which the polynuclear leucocytes were derived had a definite limit as regards proliferative capacity, so that after long periods of damage sustained or of excessive proliferation undergone they could no longer generate leucocytes for the defence of the body against bacteria. The protective functions of the body were thus impaired and in such circumstances the bacteria of the alimentary canal, nose, and throat normally present as saprophytes assumed a pathogenic character by reason of the protective forces of the body being weakened Hence arose a condition of bacterial infection and invasion from the alimentary canal and upper respiratory tract. In such conditions the body, if it desired to survive the invasion of such toxins and bacteria, was obliged to increase its auxiliary defences —that was to say, body cells which ordinarily took only a subordinate part in the destruction of foreign invaders were now roused to active antitoxic or phagocytic functions It was only in constitutions damaged to this extent that a special toxæmic and saprophytic infection occurred which led to the development of general paralysis This special infective agent, the one which was dominant in, and was characteristic of, the onset of general paralysis—was a diphtheroid organism—i e, one resembling the Klebs Loffler *bacillus in culture and morphology,* but not identical with it, and the view was advanced that this organism was an "attenuated form" of the Klebs-Loffler bacillus It had a pathogenic action upon rats The febrile rises of temperature, the disorders of digestion, the leucocytosis, the chronic sore-throat and septic condition of the mouth observed in general paralytics, and the frequently obtainable evidence of chronic bronchitis all tended to show that the general paralytic was suffering from a bacterial toxæmia The stomach, throat, and lungs of the general paralytic usually showed evidences of chronic catarrh The stomach itself might show little or no alteration but the ileum was constantly affected The tonsils of the general paralytic were frequently enlarged or more commonly they were extremely atrophic The crypts of the tonsils were filled with pus an [illegible] ences of long-standing local [illegible] development of plasma cells [illegible] ked such areas of local bacterial infection. These plasma cells were auxiliary defences of the body and their great development in such localities was an indication that a special call had been made upon them to combat bacterial invasion. Cultures made during life from the nasal and pharyngeal secretions of general paralytics resulted in the development of micro-organisms far in excess of the normal in numbers. A washing from the stomach in one case of general paralysis showed great numbers of bacteria. The septic cystitis to which general paralytics were specially prone was attributable to bacteria absorbed from an unduly septic alimentary canal and excreted by the kidneys in the urine. Cultures were made in post-mortem examination of 20 cases of general paralysis, the nasal or intestinal contents being used for this purpose. In 17 cases out of the 20 the cultures furnished evidence, in addition to other bacteria, of the presence of the diphtheroid bacillus already alluded to, and in the three remaining cases the bacillus was found by other methods of detection. In eight out of the 20 cases this organism was present in very great numbers. A recent series of cultures from the secretions of the nose and throat of ten general paralytics at the Edinburgh Royal Asylum showed that the diphtheroid bacillus was present in nine cases. Out of 16 cases of general paralysis where cultures were made from the brain post mortem four showed the presence of the diphtheroid bacillus. The bacillus in these four cases must have obtained an entry either by the blood or by local infection of neighbouring parts (internal nasal cavities or internal ear). A filamentous variety of the diphtheroid bacillus had also been met with in the lymphatics of the intestines in a few cases and was to be regarded as a terminal infection. The diphtheroid bacillus when introduced into the alimentary canal of rats gave rise to certain morbid symptoms which progressed until death occurred. Changes closely resembling those that were present in general paralysis were met with in the brains of these rats. The changes were observed in the nerve cells and in the non-nervous tissues (blood-vessels and neuroglia) alike. The whole body of facts included in the above investigations therefore supported the view of the specific bacillary origin of general paralysis of the insane.

---

[1] Brit Med. Jour, June 29th, 1901

In the discussion which followed the PRESIDENT stated his belief that in the vast majority of cases and upon the weight of indisputable evidence syphilis was an antecedent of general paralysis The results of trophic peripheral changes led to secondary catarrhs and bacterial infections (tonsillary, bronchial, intestinal, and a variety of others) in various parts of the body, but these he regarded as natural to the later stages of general paralysis and as non-essential to its causation.

Professor D. J. HAMILTON (Glasgow) mentioned a rare case of bacillary infection of the spinal cord which followed upon a railway accident without external injury in a young girl.

Professor J. G. ADAMI (Montreal) cited evidence to show that bacteria of low virulence and their toxins might have undoubtedly a progressive action upon the nervous system. General paralysis was a chronic state leading steadily to a greater and greater weakness of the body as a whole, favouring what he had termed "sub-infections" of various types, and while prepared to believe that a diphtheroid bacillus might be an accessory factor in general paralysis he would be cautious in accepting it as a specific agent in the production of the disease.

Dr. J. F FLASHMAN (Balmain, Australia) thought the facts brought forward might be of assistance in explaining cases of general paralysis not due to syphilis.

Dr. FLETCHER BEACH (London) inquired whether the bacillus and the lesions attributed to it had been met with in cases of juvenile general paralysis the etiology of which was almost invariably syphilitic.

Dr. F. W. MOTT (London) said he still believed that syphilis was the most important and frequent cause of general paralysis. He inquired whether the diphtheroid bacillus was met with in the very earliest stages of general paralysis. He cited cases of chronic poisoning with abrin and ricin in animals where changes in the brain were produced resembling in many respects those of general paralysis. He also inquired whether plasma cells were present around the cerebral blood-vessels of rats fed on the diphtheroid bacillus.

Dr. W. LLOYD ANDRIEZEN (London) emphasised the etiological and clinical frequency of syphilis and described the changes in the cerebral vessels and meninges in early cerebral syphilis within three years of infection. All stages could be found between these cases and those of general paralysis supervening from 10 to 15 years after infection. There was continuity of symptoms and of pathological lesions between these two classes of affections. He also cited cases of improvement by the "intensive" mercurial treatment of general paralysis. He regarded the diphtheroid infection, like the cystitis of general paralysis, as a subterminal and secondary state not essential to the etiology of the disease.

Dr. MAULE SMITH (Wakefield) had met with a diphtheroid organism in two patients dying from asylum dysentery, but he had not found this organism in general paralysis. He inquired whether this organism was to be regarded as infective from one patient to another.

Dr. DAVID YELLOWLEES (Glasgow) was not disposed to accept Dr. Robertson's views as to the diphthero-bacillary origin of general paralysis in the face of clinical evidence which was overwhelming. He agreed that syphilis was a very frequent but not the sole cause of general paralysis.

Dr. F. EDRIDGE-GREEN (London) believed that syphilis was the cause of general paralysis and of tabes. The patient' had in many cases seemed to suffer very little from the immediate effects of syphilis and had led a very steady life afterwards, but nevertheless in 10 or 15 years' time general paralysis or tabes was developed.

Dr. J. HADDON (Denholm) was glad to think that lunacy might be due to a microbe and regarded Dr. Robertson's diphtheroid microbe as a discovery in this direction. He, however, was of opinion that lunacy (including general paralysis) was caused by civilised habits of injudicious feeding and errors of diet and thought that attention to this source might serve to prevent cases of insanity arising from gastro-intestinal disorders and consequent auto-intoxication.

Dr. E. GOODALL (Carmarthen) inquired whether the diphtheroid organism was present in the colon and at the ileo-cæcal valve, where the inhibitory action of the intestinal wall on bacteria was least marked, and whether the brains of rats fed with cultures of the bacillus showed degeneration of the tangential fibres.

Dr. T. B. HYSLOP (London) said that the accumulated work of clinicians all over the world had established syphilis as being the chief cause of general paralysis and he believed that the bacillus of Dr. Robertson was part of a terminal infection occurring in the advanced stages of general paralysis.

Dr. ROBERTSON, in reply, stated that he realised the etiological importance of syphilis, but asserted that the general and local impairment of the alimentary and respiratory tracts, permitting bacterial invasion and toxæmia, constituted the main and the essential constituents in the production of general paralysis.

Dr. R. S. ROWS (Whittingham) read a brief paper on

Cavities in the Spinal Cord,

illustrated with lantern slides. Three different cases were described and illustrated. In the first of these the cavity formation was due to atrophy of the nervous tissue and the neuroglia, in the second to syringomyelia, and in the third to hæmorrhage into the perivascular spaces and substance of the spinal cord.

THURSDAY, JULY 30TH.

Dr. HYSLOP opened a discussion on

Alcohol in its Relation to Mental Diseases.

He considered alcohol in its relationship to physical and mental processes and argued that the rôle of alcohol in the healthy human body was more evil than good and that its use was abuse. In the unhealthy body the use of alcohol was compared to a loan raised at heavy interest which might be employed to cope with immediate and pressing needs but which constituted a heavy burden on the borrower until repayment was completed. Alcohol produced an illusory sense of well-being and of mental energy and capacity without in any way enhancing mental power. On the contrary, even in moderate doses it tended to lower the ability of performing the more complex and difficult parts of any task, physical or mental. It tended to accelerate and to confuse thoughts and ideas without regard to the logic of circumstances and it stimulated the subject to restlessness and to overaction. The vascular system responded to the presence of alcohol by vaso-dilatation and by increased exudation of lymph into the perivascular tissues, and in chronic alcoholism a number of characteristic vascular and peri- vascular changes were thus set up in the brain. The increased exudation of lymph from the blood-vessels carried with it an increase in the number of extravasated leucocytes which thereafter underwent rapid destruction and dissolution. Alcohol, moreover, acted deleteriously by absorbing [illegible] the plasma, for the [illegible] he normal processes [illegible] yslop then referred to the neuron theory and to the pathological changes met with in the brain in cases of chronic alcoholic insanity as described by Andriezen, Berkley of Baltimore, and others, and stated that the lesions described by these authors undoubtedly afforded a physical and neurological basis for the clinical symptoms observed in such cases during life—viz., the amnesia, the muscular weakness, and the slowness of reaction time of the chronic alcoholic subject. In conclusion, it was suggested that alcohol *per se* did not cause general paralysis of the insane.

Dr. G. ARCHDALL REID followed with a paper on

Human Evolution with Especial Reference to Alcohol.

[illegible] at all the races of mankind [illegible] mon stock and that by [illegible] ge from the original stock [illegible], it was argued that human individuals differed in their power of resisting diseases and that the offspring tended to inherit this parental power or weakness in particular. An example of this was cited in the case of the negroes who as a race were more resistant to malaria than the British, while it was said that *per contra* the British were more resistant than the negroes to pulmonary tuberculosis. "The British, who for thousands of years have been afflicted by phthisis, measles, and whooping-cough, are much more resistant to these diseases than the inhabitants of the Western hemisphere, who have known them only during the last few generations and who are now being exterminated by those diseases." Parental disease, continued Dr. Reid, did not affect in any way, either for good or evil, offspring born subsequently; at any rate, such offspring did not inherit the disease or the good or evil sequelæ of the disease. He challenged anyone to produce genuine instances of so-called "degeneration" of the offspring arising from, or caused by, plumbism, gout, pulmonary tuberculosis, syphilis, or other diseases of the parents. The prevalent belief largely held by the profession that such diseases were actual and potent causes of "filial degeneration" he regarded as an ancient superstition resting on bad observation. The most convincing argument against the popular view was as follows. If parental disease affected the offspring subsequently born then the morbid condition thus reproduced in the offspring would be a congenital one and such congenital morbid conditions would, according to biological law, be transmitted to the descendants of the said offspring. "Under such conditions," continued Dr. Reid, "a race afflicted by any disease would undergo rapid degeneration and ultimate extinction. We know that this is not the case." People differed in their susceptibility to the "charms" of alcohol; those who craved most strongly for alcohol were those whom alcohol affected most intensely and pleasurably. Moderate drinkers, on the other hand, did not have this craving. People drank, as a rule, in proportion to their desires. The greater the internal craving the greater was the temptation to excessive indulgence and the greater would be the mortality of such persons. Published statistics on parental alcoholism and on its effect on the offspring were untrustworthy because the various sources of error were not taken into account, and most observers were, continued Dr. Reid, prejudiced in favour of a preconceived theory. If the offspring of alcoholic parents were affected by degeneration then races or families which had long abused alcohol should be degenerating and tending towards extinction. The Jews, Greeks, Italians, Spaniards, Portuguese, and South Frenchmen, who as races had long been addicted to alcohol, should then *ex hypothesi* teem with degenerate and effete individuals the result of ancestral alcoholism. Yet the evidence was very clear that these races did not teem with such products and that they were at present the most temperate (and *ipso facto* non-degenerate) people on earth. Drunkenness in the ancestry was the cause of temperance among the descendants; hence the progeny of drunken parents tended, after the lapse of generations, to become temperate men and women with no craving for alcohol. Dr. Reid then briefly touched upon the use of opium in Eastern countries and concluded by enunciating the proposition that repressive legislation against alcoholism was useless among civilised nations. It had been tried on hundreds of occasions during thousands of years and had universally failed except among the Mahomedans and with them success was only partial.

Dr. CHARLES A. MERCIER (London) referred to the enormous value of alcohol as a stimulant in states of exhaustion and as a hypnotic in many cases of insomnia. He did not believe in the possibility of correlating specific changes in the structure of the brain tissue with changes in consciousness, for how could the structural change, he argued, help us to understand why the patient in whose brain they occurred suffered from a delusion of persecution or a mnemonic delusion? No research into structural change would ever explain such phenomena. Dr. Mercier then proceeded to criticise at some length several of the propositions laid down by Dr. Reid. As regards the inheritance of acquired characters which Dr. Reid opposed he (Dr. Mercier) could, like all physicians experienced in mental disease, adduce numerous instances showing that alcoholism of the parents affected the offspring deleteriously, but he was aware that Dr. Reid evaded the consequence of such facts by stating that the morbid conditions seen in the offspring were not the result of alcoholism in the parents but were the outcome of other causes.

Dr. YELLOWLEES said that the effects of alcoholic indulgence varied especially with the temperament of the drinker. Some men never suffered from delirium tremens however long or deeply they drank, others became insane [illegible] ally [illegible] onic [illegible] not manifest even these but sank gradually into chronic alcoholic dementia. He had noticed climacteric melancholia as a result of drinking habits indulged in early life—a heavy penalty paid for the errors of youth.

Dr. T. N. KELYNACK (London) referred to the importance of recognising the occurrence of auto-intoxication and to the remote and indirect "*secondary infections*" predisposed to by alcoholism. He thought that the morbid psychology of alcoholism would be a fit subject for collective investigation.

Dr. EDRIDGE-GREEN said that in discussing the transmission of acquired characters a distinction should be drawn between those characters which were acquired through the desire of the individual and those which were accidental, like the loss of an arm.

Dr. A. T. SCHOFIELD (London) thought that Dr. Reid had revived an old fatalistic theory which was believed to be dead. Tendencies to disease were inherited, but some tendencies of this nature might be resisted and overcome by hygiene and to this category belonged some of the evil tendencies transmitted to the offspring of alcoholic parents.

Dr. J. J. RIDGE (London) said that several of the links in a chain of argument might be correct though the conclusion might be absurd. Already life assurance societies were awakening to the fact that alcoholic indulgence, even in moderation, produced degeneration of tissues in the individual which showed itself at or about the age of 60 years.

Dr. FLASHMAN thought that the view held by some biologists that the germ plasma was uninfluenced by the environment could not be sustained on medical grounds. Changes in the nutrition of the body affected the blood plasma and the germ plasma. Dr. Reid neglected to take into account the many counteracting influences at work which mitigated the bad hereditary effects of parental disease, including parental alcoholism. He could not agree with Dr. Hyslop's statement that alcohol restored the nerve energy temporarily and he regarded the theory of amœboidism of the neurons as discredited.

Dr. FORD ROBERTSON said that he would go farther than Dr. Hyslop in attributing importance to the effects of alcohol in damaging the defensive forces of the body generally and locally and in thus opening up avenues for the invasion of bacteria. He regarded Dr. Reid's 16 propositions as bristling with fallacies. On general physiological grounds they were justified in regarding the germ cells as affected by nutritional conditions as other cells were. The onus of proof that the cells were unaffected by nutritional disturbances (alcohol and other toxic agents diffused in the blood plasma) lay with Dr. Reid. He awaited with confidence the further accumulation of evidence on this point, as he was convinced that alcohol affected the germ and sperm cells and was a potent factor tending towards the degeneration and death of the offspring thus affected.

Dr. ANDRIEZEN (London) said that alcohol acted on the tired brain as a spur on a jaded horse. It did more damage to the nervous centres than simple fatigue would cause. It also deprived the tissue of the oxygen necessary for its metabolism. He had ample and indisputable evidence to prove that the "thorns" and "gemmules" of the cortical nerve cells, both human and animal, were normal structures. He referred to researches published by him in 1894 on alcoholic insanity in which a correlation was shown to exist between cerebral changes in the nerve cells and fibrils on the one hand and such clinical symptoms as muscular weakness and tremor, amnesia, and slowness of reaction time on the other. He believed that Dr. Reid's views were founded on a misconception of Weismann's theory of the so-called "isolation" of the germ plasma and adduced evidence from cases of idiocy and imbecility and from the investigation of the "Jukes" family showing that deep and far-reaching degeneration of descendants resulted from the alcoholism of parents.

Dr. **Heywood Smith** (London) had observed a characteristic symptom in female inebriates—viz., lying—and inquired whether it was common in cases of alcoholic insanity.

Dr. **Fletcher Beach** referred to a conjoint inquiry carried out by him with Dr. G. E. Shuttleworth a few years ago, as the result of which he concluded that idiocy and imbecility were common and frequent in the offspring of alcoholic parents. A man or woman who had "soaked" freely in alcohol for years could not be regarded as having sound and healthy germ cells or sperm cells. He believed that public opinion should be enlightened before repressive legislation was proposed, and when the morals of the nation were elevated there would be little need for such legislation.

Dr. **Wilfred J. Harris** (London) said that alcohol was not a strength-sustaining agent and was discarded by men training for swimming long distances or other feats of prolonged neuro-muscular work.

Mr. **James Stewart** (Clifton) stated that in his experience nearly 40 per cent. of neurotic patients who had been under his care during recent years owed their disease to parental alcoholism.

The **President**, in summarising the subjects discussed, pointed out that the marked amnesia of chronic alcoholism, as well as the marked retardation of reaction time, were due to fine cerebral lesions affecting the cortical neurons. He could not accept Dr. Reid's view that alcohol did not prejudicially affect the germ plasma. As regards the right use of alcohol he felt that under the control of the reasoning and moral faculties the use of alcohol was in certain conditions advantageous.

Dr. **Hyslop** and Dr. **Reid** then briefly replied to the criticisms and comments made on their respective papers.

Dr. **Alice N. V. Johnson** and Dr. **Goodall** communicated a joint paper on

The Action of the Blood Serum from Cases of Mental Disease upon the Bacillus Coli Communis.

Starting from the view, now generally accepted, that excessive growth of intestinal bacteria might occur when the inhibitory action of the intestinal wall on bacteria was diminished, it was argued that excessive growth of the bacillus coli communis might especially be looked for in states of reduced health commonly associated with the progress of mental disease. Blood from 25 cases of insanity of various kinds was taken. Of these 11 were cases of acute mania, five were cases of melancholia, two of delusional insanity, one each of puerperal insanity, climacteric insanity, recurrent mania, and alcoholic insanity, and three were cases of general paralysis of the insane. Blood serum was prepared from each case and its action was tested upon cultures from mixed strains of the bacillus coli communis in order to ascertain whether, by the demonstration of agglutination, direct evidence could be adduced of the morbific influence of the said bacillus in such cases, or whether indirect evidence of the like nature could be obtained of the influence of other organisms related to the bacillus coli communis. The results of these experiments, which were cited in detail by Dr. Johnson, showed that agglutination was present in 60 per cent. of all the cases, such agglutination being good in 28 per cent. and only partial in 32 per cent. of the cases. Enumeration of the leucocytes was also practised in 13 cases of various forms of insanity, the blood being investigated once a week for a period of 14 weeks. The highest number of leucocytes was found in cases of acute mania, and in these and all other cases the leucocytes were found in largest numbers when the patients were passing through acute states of insanity, the numbers falling to half or less during states of remission or of recovery. These experiments and observations tended to show that bacteria played an important part as toxic agents in the acute stages of some varieties of insanity and that leucocytosis was a valuable indication of states of exacerbation, of recovery, or of remission.

PATHOLOGY.

Friday, July 31st.

Mr. **K. W. Goadby** (London) opened the proceedings with a demonstration and a short paper on

The Use of a System for keeping Records of Bacteriological Investigations.

He employed cards of two kinds: small ones for recording each investigation made and which formed a kind of journal and large ones on which the information gained from these was tabulated. This arrangement, as well as the tabular form printed on the cards, was the outcome of many trials. The cards were kept filed in drawers, were compact, easy for reference at any time, and cross references and comparisons were easily made. Guide cards of a different colour, blank, but with a projecting piece for a name, served to indicate groups of cards.

The **President**, Professor **D. J. Hamilton** (Aberdeen), made some remarks in praise of the system and then as Dr. **I. Walker Hall** (Manchester) was unavoidably absent his communication on

The Purin Bodies of Human Fæces in Health and Disease

was read by one of the secretaries of the section. Observations by various people had established the fact that nuclein was known to be excreted by the bowel. Only very slight traces of free purin bodies had been found and uric acid never. To determine the amount of fæcal purin excreted by different individuals under varying conditions necessitated the maintenance of a fixed diet. The fæces were taken in periods of six days. By the process employed the total purin bodies were finally obtained as silver compounds. An aliquot portion was taken for estimation of the total purins and the remainder was subjected to a special process for the separation of the individual purin bases. Up to the present 40 studies had been made upon three individuals. They showed that upon the same diet, even at intervals of three and six months, the same individual excreted daily practically equal quantities of purin bodies in the fæces. These amounts were least upon a milk diet—i.e., purin-free food—and most upon a vegetable diet. The intermediary position was held by the mixed diet. When large doses of pure hypoxanthin and xanthin were added to the food the fæcal purins were not increased. The administration of 0 5 gramme of guanin led in one subject to a marked increase—about 60 per cent. reappearing in the fæces. In another person guanin was better absorbed but still a large amount was excreted in the fæces. 500 grammes of pancreas gland caused an increased excretion of purin and only about 60 or 70 per cent of the total quantity was absorbed. The quantitative separation of the fæcal purins showed that guanin, adenin, xanthin, and hypoxanthin were always present. About one-half of the total quantity was represented by guanin, one-quarter by adenin, and about an eighth each by xanthin and hypoxanthin. It was probable that any guanin which occurred in a free state in the alimentary tract was oxidised to xanthin. In ordinary circumstances it was improbable that any of the food purins were voided by the fæces. When the dietary contained large amounts of nucleins, as, for instance, in sweetbread, it was possible that only a certain proportion was decomposed or absorbed and the remainder would appear in the fæces. The figures obtained suggested that there was a distinctly personal factor in the absorption of nuclein and its derivatives. There was little doubt that in experiments upon general metabolism the fæcal purins should always be estimated, although from a clinical standpoint their slight variations might be neglected. An attempt to isolate nuclein from the fæces in a sufficiently pure condition for elementary analysis had so far not yielded successful results because of the difficulty of an entire removal of the mucin. The presence of guanin, adenin, xanthin, and hypoxanthin in the fæcal nuclein suggested an origin from the cell nuclei of the intestinal mucous membrane, but it was possible that the pancreatic juice might contain some free guanin. In diarrhœa and inflammatory conditions of the mucous membrane the purin bodies were increased. In a case of subacute rheumatism they had been unaltered in the acute attack, a subacute attack, and during convalescence six months later. In the normal adult the fæcal purin yielded daily about from 0·01 to 0·023 gramme of nitrogen (from 0·025 to 0·0575 gramme of xanthins), a very small amount in comparison with the 0·16 gramme of nitrogen (0 58 gramme of uric acid and xanthins) passed in the urine on a purin-free diet. It was known that a small quantity of nucleo-albumin might be met with in the urine and that it arose from shed epithelium; similarly a certain amount of nucleo-albumin must be daily shed by the bronchial, pharyngeal, and nasal membranes. The remaining tissue cells passed their decomposed nuclein into circulating fluids of the body. It was obvious that in all inflammations the excretion of purin would be increased. Dr. Hall thought that these facts indicated the general absorptive and selective faculty of the intestinal epithelium of an individual whose factor had been attained and would assist in the determination of dietaries and therapeutic measures.

Professor **SENATOR** (Berlin) spoke a few words on the subject and then one of the secretaries read a paper on

A New Method for the Determination of Uric Acid in Urine,

by Dr. A. F. **DIMMOCK** (Harrogate) and Mr. F. W. **BRANSON**, F.I.C., F.C.S. (Leeds). They had devised the following method which had been found to work easily. 100 cubic centimetres of the urine were taken and warmed to about 40° C. and then saturated with 31 grammes of chloride of ammonium, [illegible] ered measuring glass [illegible] complete solution of [illegible] The contents would then be at a temperature of about 15° C. and should be left for at least two hours (preferably 12) for the precipitate of urate of ammonium to subside. Should any of the precipitate have a tendency to remain near the surface a gentle rotation of the measuring glass would cause it to settle. The supernatant liquid was poured off and the portion left was to be carefully filtered through a small filter paper (diameter about 5·5 centimetres), as by Hopkins's method. The precipitate was carefully washed with a very dilute solution of ammonia, consisting of 1 part of strong solution of ammonia in 1000 parts of distilled water. The precipitate was best washed in the following manner. The liquid was allowed to drain from the precipitate and the filter paper was then filled with the dilute ammonia solution contained in a wash bottle. This was allowed to drain off and the filter paper was again filled with the ammonia solution. This operation was to be repeated a third time. Some of the filtrate was tested with a 5 per cent. solution of nitrate of silver acidulated with nitric acid 5 per cent. Only a very slight precipitate should be given, indicating the absence of any appreciable amount of chloride of ammonium, but if the filtrate still contained this salt it should be washed with a small additional amount of dilute ammonia. The precipitate with the filter paper was placed in the generating bottle of a special nitrometer, the tube being filled up to the mark (25 cubic centimetres) with the hypobromite solution and lowered into the bottle by a piece of string. The temperature of the hypobromite solution was noted; it should approximate to that of the room in which the estimation was to be made. The cork was now placed in the generating bottle and the bottle was plunged in a vessel of water of a temperature similar to that of the hypobromite solution. After two minutes the water level in the measuring burette was adjusted to zero and the apparatus was tested to see that there was no leakage. Finally, the generating bottle was tilted to allow the reagent to flow out of the tube and reaction between the hypobromite of sodium and urate of ammonium was promoted by shaking. After ten minutes the water levels were adjusted to equilibrium and the percentage of uric acid was read off as indicated by the nitrogen evolved. The burette used was graduated specially from the results of numerous determinations and the method seemed to be quite suitable for proportions of uric acid ranging from 1 in 1000 to 1 in 10,000. By the addition of a second scale to the burette the instrument could be used as a ureometer.

Dr. G. L. **EASTES** (London) remarked that the method appeared to be very satisfactory (if the graduations on the burette were to be relied on) in that it shortened the time taken in estimating uric acid by Hopkins's method by from four to six hours.

Dr. F. G. **BUSHNELL** (Plymouth) read the last paper on

The Differential Leucocyte Count and Estimation of the Leucocytes in 41 Cases,

including 20 cases of malignant disease, three of leukæmia, two of Hodgkin's disease, two of beri-beri, one of blackwater fever, one of malaria, one of (?) Addison's disease, and one of hypertrophic cirrhosis of the liver. Besides the paper giving Dr. Bushnell's remarks on the cases a table was added containing details of the blood counts.

Dr. E. R. **CARLING** (London), in the course of some remarks on this paper, stated in regard to a series of cases of appendicitis in which he had counted the leucocytes that in those cases where the leucocyte count had amounted to 20,000 per cubic millimetre pus was found at some time or other either before or after, but that pus was not found in any of those cases in which the leucocytes were less than 20,000 per cubic millimetre.

After some concluding words by the **PRESIDENT** of the section the meeting came to an end.

In addition to the papers, discussions, and lantern demonstration the section provided a pathological museum containing more than 120 macroscopic pathological specimens, many of them of very great interest, which were lent from various institutions or by private individuals, besides a valuable series of radiograms, photographs, and drawings of pathological conditions and about 30 microscopic specimens. Dr. D. E. Evans (Swansea) and Dr. Newman Neild (Bristol) were responsible for the excellent arrangement of the museum.

OPHTHALMOLOGY.

FRIDAY, JULY 31ST.

Mr. **GUSTAVUS HARTRIDGE** (London) opened a discussion on

The Treatment of Convergent Squint.

He said that the treatment of concomitant convergent strabismus in a scientific manner could only be approached by the consideration of the various factors which helped to produce the disorder and by a careful examination of every case so that the value and importance of each factor might be ascertained It was known to all that concomitant convergent strabismus was a condition affecting both eyes, a binocular defect, and the result of excessive innervation of the internal recti muscles excited by the associated act of accommodation. The factors which assisted in the production of squint were: (1) hypermetropia; (2) imperfect development of the fusion faculty; (3) defective visual acuity in one eye; and (4) the anatomical position of rest of the eyes. These various factors did not play the same part in every case; they might not all be present, hence a careful and systematic examination of each case was essential. The objects to be obtained by treatment were: (1) the correction of the deformity; and (2) establishment of binocular vision for all distances He divided the treatment into three classes: optical, orthoptic, and operative. The importance of an exact optical correction was beyond all question and in many cases resulted in a complete cure. Orthoptic exercises were of great value in many cases but must be commenced early. They consisted of: (1) covering up the fixing eye for a certain time daily; (2) practice with a stereoscope or one of the special instruments devised for [illegible] out for 12 months before any operative treatment could be entertained. When an operation had been decided upon they had to decide what operation should be undertaken. They had at their disposal four operations: (1) simple tenotomy of one or both eyes; (2) simple advancement; (3) tenotomy with advance of the opponent muscle; and (4) stretching of one of the muscles. The chief points on which he invited discussion were: (1) when was an operation necessary or justifiable? and (2) what operation gave the best results? In his view the conjunction of tenotomy of one muscle with advancement of the other gave the best results; he was distinctly adverse to operating on both eyes at the same sitting. As to the age for operation, that must be determined by the condition of the field of vision in the divergent eye. They had always to bear in mind the deformities produced by operation, sunken caruncle, limitation of movement, alteration of width of palpebral fissure, and the like; each case had to be considered in view of these after-effects. They had also to bear in mind that squints the increase according to the statements of competent veterinary surgeons. As a rule infection probably occurred from bovine tubercle bacilli passing through the intestinal wall. Then the mesenteric glands became affected and afterwards the retroperitoneal glands. When these cases were examined bacteriologically it would be found that although the actual bacillus appeared to be the same as that which was present in the pulmonary tubercle of adults, yet the culture growth was quite different. The growth corresponded exactly with that from bovine tubercle and was entirely distinct from that which was derived from human tubercle. With regard to the tuberculosis of cervical glands in children, again he thought that they depended upon an infection with bovine tubercle through the tonsils and the naso-pharynx. It would appear likely that the bovine tubercle bacillus was very virulent so far as young subjects were concerned, but that it had but little action upon adults and that the tubercle bacillus of the adult human being was not so virulent to children. Further, it might be that an infection with the bovine organism protected from future infection with the human bacterium. In cases of tuberculous meningitis he was sure that there might be the meningeal condition without any other signs of tubercle and he considered that there might have been direct infection of the meninges through bacilli having gained entrance from the pharynx into the blood stream.

The PRESIDENT (Mr. W. ARBUTHNOT LANE, London) congratulated Dr. Raw on the clear manner in which he had stated his conclusions. He thought that in many cases of tubercle in children, including tuberculous meningitis, there had been a previous traumatism, for it was rare for the bacillus to infect wholly healthy organs. Glands in the neck might first have been infected with some other bacterium and then with the tubercle bacillus. In abdominal tuberculosis again there was usually a previous history of intestinal disturbance.

Dr. D. A. REID (Tenby) considered that it was the duty of every medical man to render all the aid in his power to the elucidation of the question of infection. He drew attention to the fact that the natives of India and even their children were peculiarly free from tubercle, while European residents there and their offspring were very liable to the disease and he believed that this was due to the fact that the native eschewed beef and cow's milk and only partook of goat's milk, the goat, perhaps, being the animal least likely to be attacked with tubercle.

Mr. JOHN MACKENZIE (Kirkby-in-Ashfield) had seen one case of tuberculous disease of the nipple in a woman, but she did not give her offspring tubercle. He considered that most cases of tuberculous meningitis were preceded by disease of the middle ear.

Dr. THEODORE FISHER (Bristol) thought that the reason why children suffered so much more than adults from tuberculous glands in the neck was not that they were more susceptible to bovine tubercle but because all adenoid tissue in the young was very prone to be inflamed. Again, he believed that abdominal tubercle might arise from a bronchial infection, for the secretions, in the tubes might swarm with tubercle bacilli. He did not believe in the ascending spread from the abdominal to the thoracic cavity.

Mr. C. G. HIGGINSON (Birmingham) stated that experiments on human subjects with bovine virus were constantly being made, for much milk drunk was tuberculous. Dr. Raw had again put the profession on its guard against milk and, he considered, rightly so.

Dr. W. L. SYMES (Dublin) did not like the term "tabes mesenterica." He considered that there were three varieties of abdominal tuberculosis: one in which the peritoneum alone was involved; the second in which only the mucous membrane of the bowel was diseased; and the third—a rare form—in which the mesenteric glands alone were affected. This last was the only one that deserved the term of "tabes."

Dr. E. CAUTLEY (London) admitted that he believed that bovine tuberculosis might occur in children, but he was sure that it was very rare and that infection with human virus was much more common. He considered that the expression "tabes mesenterica" should be dropped at once. He believed that tubercle in cattle was not so frequent as was thought. He considered that the bulk of it was found in pedigree cattle and those kept in towns. He was sure that the bronchial glands were even more frequently infected than the abdominal glands. Acute tuberculosis was rare in children except when it occurred in the lungs. He thought that condensed milk as an article of diet tended to make children susceptible to tubercle.

Dr. CARPENTER (London) said that he had seen cases of so-called "tabes mesenterica" in children who had been fed entirely upon breast milk.

Mr. W. MCADAM ECCLES (London) expressed his conviction that a large number of cases of tubercle in children were the outcome of a primary infection with another organism which paved the way for the tubercle bacillus. This was particularly so in the case of the cervical glands.

Dr. RAW, in his reply, referred to the very complex nature of the subject and reaffirmed his conviction that there were many cases in which the tuberculous infection spread from the abdomen to the thorax. With regard to Swiss condensed milk, it must be remembered that until lately this in itself was a source of infection in all probability, containing as it did some years ago many tubercle bacilli of the bovine form.

Adenoid Vegetations in Infancy.

Mr. R. C. DUN (Liverpool) wished to draw attention to the possible existence of adenoids during the first year of life. Some instances would appear to be truly congenital, symptoms referable to the condition being present at birth. He believed that a considerable number of infants suffered from a slight degree of adenoid vegetations, as evidenced by mild symptoms of nasal obstruction and catarrh. But there were also not a few cases in which more severe and even grave symptoms might be present. These would materially interfere with the health of the infant and did not tend to improve with ordinary medical treatment. There were several forms of the affection: the first in which there were marked nasal obstruction and catarrh, with or without epistaxis; the second in which reflex nervous phenomena were the principal manifestations of the trouble, without any real nasal obstruction (such signs might be convulsions, laryngeal stridor, and vomiting); the third those in which secondary septic affections predominated, these being chiefly septic adenitis and otitis media; and, lastly, those cases in which nasal obstruction was present and was associated with nervous and septic conditions. In by far the larger number of cases of adenoids in infancy the symptoms were slight and did not call for active operative treatment, but, on the other hand, there were certainly some cases, comparatively few in number, in which the signs and symptoms were such as to demand removal of the adenoid growth. In these the improvement that followed operation tended to confirm the fact that the various phenomena that the infant presented were in reality due to the lesion in the naso-pharynx.

LARYNGOLOGY AND OTOLOGY.

WEDNESDAY, JULY 29TH.

Sir FELIX SEMON (London), in introducing the discussion on

The Operative Treatment for Malignant Disease of the Larynx,

gave a historical retrospect, first referring to the period of therapeutic nihilism, then to Czerny's experiments and to the first operations. The mortality attending the first thyrotomies led to destructive criticism, and Paul Bruns in 1879 condemned the operation. The diagnosis in those days was imperfect and so was the technique. Butlin reinstated thyrotomy in 1889 and with better means of early diagnosis and improved technique of the operation good results followed, so that in the present day if a case remained cured after one year had elapsed since the date of the operation the patient was in the same position, so far as the disease was concerned, as if he had never had malignant disease of the larynx. Sir Felix Semon reminded his listeners of the dangers of statistics. Collected statistics from various observers and various operators at different periods gave rise to erroneous conclusions. The statistics of individual observers were alone trustworthy. He said at the present time that there were five different operations at their disposal. 1. The intralaryngeal method. Its field of usefulness was extremely limited. It was conceivable that when the disease was limited to the epiglottis it might be removed by this method, but the endolaryngeal operation had its drawbacks and was generally unsuitable in malignant disease. 2. Thyrotomy, with or without the removal of smaller fragments of cartilages. This, in the speaker's opinion and experience, was in suitable cases a perfectly ideal operation.

3. Partial extirpation of the larynx. 4. Total extirpation of the larynx. The recent improvements in its technique had increased the legitimacy of this operation in desperate cases. 5. Subhyoid pharyngotomy was of limited applicability. Speaking of the difficulties in diagnosis he said that cases of malignant disease of the larynx might be classified under three heads: Firstly, those in which everyone could make the diagnosis; secondly, those in which only experts could make the diagnosis; and thirdly, those in which no one could make the diagnosis. He advised the removal of a piece of the growth by the endolaryngeal method for a pre-microscopic examination, but when in doubt about the diagnosis their duty was to treat the case as one of malignant disease.

Dr. E. J. MOURE (Bordeaux) through illness in his family was unfortunately prevented from being present to take part in the introduction of the discussion.

Professor TH. GLUCK (Berlin) made an exhaustive communication upon the operations for malignant disease of the larynx and adjacent structures. He dealt mainly with the operations for the partial and total extirpation of the organ. After referring to the works of the pioneers in this branch of surgery he briefly described his manner of operating for the relief of stenosis and cicatrisation of the trachea and larynx, and passed to a consideration of thyrotomy and laryngotomy for diffuse papillomata and circumscribed cancer of the vocal cord as well as operations for the loss of substance caused by exfoliative necrosis of the laryngeal cartilages. In connexion with the operations he had performed for the eradication of cancer in this region he had successfully extirpated the pharynx, the larynx, the œsophagus, the entire thyroid gland, the vagus nerve, the cervical portion of the carotid and jugular vessels, and had obtained cures of two and a half years' duration. The mortality following operations for extirpation of the larynx hitherto had been due to septic broncho-pneumonia. To combat this he performed a prophylactic resection of the trachea by which a wall of tissue—a living impermeable diaphragm—was interposed between the cavity and wound of the operation and the lungs, which rendered aspiration of foreign bodies into the lungs impossible, the trachea being shut off from the pharynx and œsophagus. In hemilaryngectomy, laryngotomy, and total extirpation of the epiglottis a plastic operation, based on the same principle, was performed. After healing of the wounds the patients could partake of food like normal individuals. The duration of development of cancer of the larynx and pharynx might be even some years before the symptoms were sufficiently marked to bring the disease under notice; on the other hand, the duration owing to hæmorrhages or hoarseness might be very short. An early diagnosis and a radical operation were the essentials for recovery. Diabetes, heart disease, or advanced age did not form absolute contra-indications for operations. Amongst the complications arising from the operations for extirpation of the larynx were uncontrollable hæmorrhage from the bowels; hemiplegia, or perhaps loss of consciousness and death following ligature of the carotid artery; rise of temperature and pulse-rate which might be due to sepsis, iodoform poisoning, or heart failure; bronchitis; embolism; phlegmon of the posterior wall of the trachea and of the mediastinum; and myxœdema. Professor Gluck indicated how these possible complications might be anticipated or combated. Speaking of the results obtained from the various operations which he had performed for carcinoma of the larynx and pharynx, he said that in four cases the vocal cords had been extirpated by laryngo-fissure with excellent results, the patients remaining well for six months and two and a half, three and a half, and four years, respectively. Hemilaryngectomy had been performed in 35 cases with only three deaths, one after 24 days from sudden heart failure, another independently of the operation from a phlegmon of the right gluteal muscle, and the third from pneumonia on the fifth day. From amongst a series of 22 cases of total extirpation, there had been only one death and that on the eleventh day from iodoform poisoning in an old man, aged 70 years. Amongst the 27 transverse extirpations of the larynx and pharynx, mostly with glandular extirpation also, there had been only one death. These results compared with a previous series of cases marked brilliant progress. In a former series of nine cases—certainly very serious cases—there had been four deaths, and going back to 1888 and the first cases there had been only two recoveries out of ten operations. The operation lengthened life, renewed hope, and if after a year, or a year and a half in the more desperate cases, relapses occurred, then according to the speaker's experience the end was less painful to the patients, and in the interval the patients had lived contentedly, and in some cases merrily, till the relapse brought death rapidly. Professor Gluck said that he could have brought forward 38 of his patients, some of whom had survived the operation 11, 8, 6½, 5½, 4½, and 3½ years and in full health. Others had died from other illnesses and not from recurrence of the disease. In consequence of the length of the journey he had brought only two with him; both had been the subjects of cancer of the larynx and pharynx. In the one case five years and in the other three months had elapsed since the operation. The older case had been twice radically operated upon, with total extirpation, resection of the pharynx, the great vessels of the neck, and the vagus nerve; the patient spoke with a pharyngeal voice and followed his calling of a farmer. The second spoke with the nasal-phonetic apparatus which had been devised by Professor Gluck and which was demonstrated. Professor Gluck detailed and demonstrated by means of diagrams the various stages of the operations he had spoken of and also demonstrated a series of laryngeal and cancerous growths he had extirpated. The majority of the individuals to whom the organs and growths belonged were alive and well.

Dr. HERBERT TILLEY (London) referred to some points in the technique of the operation. For checking the oozing from the wounded parts in the larynx he had found Whitehead's varnish a most excellent antiseptic and styptic. He had observed subsequently to the operation small granulations in the anterior commissure at first suggesting a recurrence, but which were due to the stitches used in closing the cartilage.

Dr. W. JOBSON HORNE (London), speaking from a pathological as well as from a clinical experience, considered that when an error was made in diagnosis it was more commonly on the side of regarding an innocent growth as malignant than a malignant growth as innocent. An early diagnosis was of the utmost importance, but too much value might be attached to the information to be derived from a bit of the growth removed by the endolaryngeal method for microscopic examination. A negative result from such an examination was to the case what a negative result from an examination of the sputum was to a doubtful case of pulmonary tuberculosis. He thought it better not to disturb the growth by the endolaryngeal removal of a portion without first obtaining consent to a laryngo-fissure if deemed to be advisable, and in doubtful cases he considered laryngo-fissure should be resorted to.

Mr. R. H. WOODS (Dublin) was in favour of suturing the cartilages after thyrotomy; in his experience granulations within the larynx had not followed. He was opposed to the use of Whitehead's varnish; there was the danger of œdema following owing to the surface which it closed not being absolutely aseptic. The proper preparation of the patient he held to be a factor in preventing sepsis.

Dr. E. S. YONGE (Manchester) communicated the notes of two cases of epithelioma of the larynx remaining well two years after operation (thyrotomy).

Dr. J. DUNDAS GRANT (London) referred to the possibility of the fragment removed for microscopic examination containing no malignant growth, and to the frequency with which the disease was found on thyrotomy to be much more extensive than the laryngoscope had indicated. He thought that cases in which, before operation, there was a tendency to the regurgitation of fluids into the larynx were less favourable in their prognosis than those in which that did not exist, as there was every probability of the occurrence of "swallowing pneumonia."

Mr. C. P. CHILDE (Portsmouth) spoke of sudden death following the operation for cancer of the larynx in alcoholics.

The PRESIDENT (Dr. P. W. WILLIAMS, Bristol) congratulated the section upon the excellent discussion and expressed himself in accord with the views about the value of a pre-microscopic examination and statistics.

Sir FELIX SEMON and Professor GLUCK replied to the several points raised. Sir Felix Semon advised food from the first through the mouth; and preferred cocaine to any other styptic for arresting bleeding within the larynx. After thyrotomy he sutured the cartilages, taking care to pass the sutures through only the superficial part and not to enter the larynx.

THE LANCET.

LONDON: SATURDAY, AUGUST 15, 1903.

Insanity in Relation to Civilisation and Race Decay.

THE presidential address delivered in the Section of Psychological Medicine at the meeting of the British Medical Association at Swansea by Dr. ROBERT JONES, and published in THE LANCET of August 8th, p. 366, serves to call attention to some of the deeper-lying problems of insanity regarded from the sociological standpoint. The main theme of the address is the development of insanity, and especially of the less favourable and more degenerative varieties of insanity, *pari passu* with the march of civilisation. For though the past century has witnessed an unparalleled advance in the material, moral, scientific, and social progress of the nation this has not been achieved except at serious cost. "We find," says Dr. JONES, "that our advance has not been without sacrifices—losses here and retrogression there—and that civilisation itself has not been an unmixed blessing." For in the struggle which has marked our advancement the conflict has resulted not solely in the conquest of ignorance and in the higher achievements of science and of knowledge; the pathway of progress has been freely strewn with the wrecks and remnants of mental failure and physical degeneration. Of this sad fact evidence, patent to the casual eye sometimes and at other times obvious to the close observer, may be seen in many directions, and it is a fact that must give pause to those who regard with too great complacency the march of human progress. We may travel quick nowadays, but some of us have to pay heavy rates.

The law of survival of the fittest in the struggle for existence in its operation through the ages of human progress exacts its penalty in determining that the feeble, the degenerate, and the unfit shall perish. But man, rising superior to that law, elects that the feeble, the degenerate, and the unfit shall be cared for, housed, and preserved to live to old age and, it may be, to propagate their kind, and the accumulated results of such action are seen in the steady increase of the effete and the degenerate and in the increasing burdens imposed upon society for their maintenance. So far as trustworthy information is to be had it appears that insanity increases as man departs from the savage and semi-civilised states and approaches the highest grades of civilisation. "It is only when we come to higher civilisation," adds Dr. JONES, "that the higher forms of insanity are seen." Many factors have contributed towards the increase of nervous diseases and of insanity with civilisation and to the increased malignity and incurability of many of the types of insanity which now prevail in civilised communities. On the one hand there exist as etiological factors the greater mental toil and hurry of the modern strenuous life, the overtasking at school, the increased amount of irksome study for the learned professions, the more exciting nature of our amusements, the sensationalism and pruriency of the mental pabulum offered in newspapers and literature to all classes alike, the more stimulating character of our diet, and the restlessness introduced into life by increasing facilities of travel and communication. Moreover, among the lower strata of society the overcrowding and the unhygienic conditions of slum life in great cities, the free propagation of the weak and the unfit, the presence of a considerable neurotic and pauper alien strain, and the widespread existence of alcoholic intemperance act as contributory factors in the same direction. It is thus seen that great centres of civilisation practically manufacture their own unfit—viz., their paupers, lunatics, neurotics, and degenerates. Indeed, criminologists have even taught us in recent years that society is the broth or culture medium which favours the growth of one of its microbes—the criminal. London alone is responsible, says Dr. JONES, for the production of over 70 insane persons per week a number which, he thinks, is destined to increase.

In reference to types of insanity which are growing in numbers as in importance at the present day, Dr. JONES mentions dementia præcox and general paralysis. Dementia præcox, a disease rare in the early part of the last century, now attacks some of our most promising youth, and the condition is practically incurable. The increase of general paralysis of the insane is another serious factor in modern civilisation; while the difficulty or the impossibility of limiting the spread of syphilis has rendered the outlook in this direction grave. It seems to be generally agreed that a hundred years ago there were not only fewer cases of insanity but those which occurred were acute and curable. Not until Jan. 1st, 1859, was the number of lunatics officially registered in this country. At that date there were 36,762 insane persons—a proportion to the population of 1 to 536. To-day they number over 113,000—a proportion to the population of 1 in 293—and the tendency of much of the insanity which comes under treatment to-day is to end in dementia and to become incurable. Melancholia has shown in recent years a considerable rise among the educated and private classes of the insane and recovery is rarely the happy issue of melancholia, more especially in men. With the progress of civilisation, therefore, concludes Dr. JONES, not only is insanity on the increase but the occurring varieties are less curable, the physique of the town-dwelling section of the population has deteriorated, and the statistics of recovery from insanity are less favourable to-day than they were as comparatively recently as 25 years ago. No one reading Dr. JONES'S thoughtful address can fail to be struck with the evidence for a pessimistic view. But relief may be at hand nevertheless and may come from the same direction as the evil. The increased intellectual activity, which is now reproached for bringing in its wake a train of psychological ills, will become more disciplined in its working, when the mental health of the people will improve, and the blessings of the fuller life which modern education and modern invention have brought within their reach will be enjoyed with impunity.

The Histology of Muscle.

THE structure of muscle is a subject of perennial interest and although the description and diagrams of various observers are repeated with but little alteration in successive editions of their own treatises, it is remarkable that no two histologists who have investigated the subject at first hand agree in all points in their accounts with each other. The existence of a spiral fibre encircling the muscle fibre, as an explanation of the striation of voluntary muscle, was advocated by Mr. SKEY many years ago but has been altogether ignored by more recent microscopists. In the April number of the *Archiv fur Mikroskopische Anatomie* this old doctrine has received unexpected confirmation from Dr. KARL MUNCH, the assistant in the Pathological Institute of Geneva. This observer, in the course of his researches upon the precise limits between striated and unstriated muscle, on examining the smooth muscle cells of the œsophagus of the cat, noticed with surprise that the nuclei of such cells presented a more or less well-marked transversely or obliquely striated aspect. Further inquiries showed that the same appearance was visible in the nuclei of the muscle cells of the stomach, the intestines, and the bladder not only of the cat but of other mammals as of the guinea-pig, the rat, and the rabbit. Special arrangements require to be made for success in the observation. The lens must have a high magnifying power —viz., from 700 to 1000 linear. The specimen must be taken immediately after death, delay of a quarter of an hour causing all traces of the spiral disposition to be lost. The fragment to be examined should be treated with a 2 per cent. solution of acetic acid or with a 3 to 5 per cent. solution of citric acid. The focussing of the nuclei requires the greatest care, for the whole depth of the object has to undergo examination, and the different aspect presented by each nucleus, according to whether the superficial or deep surface or the internal substance is in focus, affords to some extent an explanation of its structure and of the presence of the spiral band. With such high powers the manipulation of even a skilled microscopist is taxed to the uttermost.

The appearances which Dr. MUNCH describes may be briefly summed up by saying that the nucleus, being supposed to rest on its side, an oblique striation is observable on the distal surface, the striæ, which are very faint, running from the left downwards to the right. On focussing the proximal surface, a more distinct striation is observable, the striæ, however, running at an angle to or divergently from those on the distal surface. If the internal substance of the nucleus is now focussed all manifestation of striæ is lost, so that the appearances presented coincide precisely with those which might be expected to occur were a fibre to be wound spirally round the nucleus from left to right. Occasionally and less frequently the striæ run from right to left from above downwards. As a means of fixation Dr. MUNCH recommends firstly the use of the smallest fragments of unstriated muscle possible and then that these should be immersed for five minutes in a solution of 3 to 5 per cent. of citric acid and afterwards treated with a 7·5 per cent. solution of sublimate; finally, they should be thoroughly washed and placed in iodised alcohol in the usual way. The striæ are anisotropous and are stained with hæmatoxylin, carmine, saffranin, cochineal, methyl-green, and thionine. The number of turns of the spiral fibre in each nucleus varies considerably. The smallest number which Dr. MUNCH has met with is three and a half and the largest he has counted with certainty is 15. The nuclei do not appear to possess a membrane, though their protoplasm is sharply limited and defined from the adjoining cell protoplasm. Having satisfied himself of its at least occasional existence Dr. MUNCH proceeds to ask the following three questions—whether the spiral figure is always present, whether it is the only morphological figure that exists in the nucleus, of what material it is composed, and what is its developmental history. In regard to the first point he has not been able to assure himself of the presence of the spiral figure in the striated muscle cells of mammals, birds, fishes, or arthropods (though in one instance he observed it beautifully marked in a thin frog that had outlived the winter), nor could he make it visible in the nuclei of the slender unstriated cells of gastropods or vermes. Still, he entertains no doubt that it forms a normal constituent of all active muscle cells and is neither an abnormality nor an evidence of degeneration, neither the indication of a resting state nor an antecedent or subsequent phase of cell division. In regard to the second question, he has not been able to see any other structure, not even a nucleolus, in the nuclei presenting a spiral figure, but this, however, is not surprising considering the minuteness of the object. In regard to the third question it can only be said that the spiral figure stains like chromatin and may therefore represent that constituent in the nucleus. In regard to the developmental history of the spiral figure he has no information to give.

Having thus exhausted the histology of the nucleus Dr. MUNCH next proceeded to inquire whether the transverse striation of striated muscle might not be due to the spiral arrangement of the anisotropous substance. It is impossible, he observes, to obtain a complete stereoscopic view of any object with the microscope, and we must therefore draw on the imagination to build up from the appearances presented by focussing at successive depths the form of an object which would result from the superposition of the several images; and there are many difficulties to overcome in the endeavour to effect this plastic reconstitution. In the first place, there is the difference between the comparatively thick muscle fibre and the extreme delicacy of the zone formed by the parallel spirally-running striæ; secondly, the irregularity of the parallel striation; thirdly, the errors arising from the peculiar refractive powers of a transparent cylinder, which, as Dr. MUNCH shows by diagrams, materially alters the direction of fine lines drawn parallel or at right angles to each other on its surface; and, lastly, there is the chance of confusion arising from the tendency of the fibre to split up into various sized columns, thus forming fibrils, or into discs. In the endeavour to overcome these difficulties it may be noticed that, whilst it is impossible to follow one stria completely round a fibre on account of its minuteness, however many muscular fibres are examined a true transverse striation is never met with. The striation presented by the muscular fibres is, he contends, in all animals and man, who is zealous in the practice of his profession, seeks and attains some degree of progress, and any advance which he may make as an individual should be regarded by him as an integral part of the progress aimed at by the medical profession as a whole. The writing of books by those qualified to do so with authority assists in this progress by making known the results of scientific work, by collecting and comparing results already made known, and by laying open for the general use of the profession new and improved methods in medicine and surgery. The copyright in the book or article protects only the writer's ideas in the form in which he has expressed them. It protects his work in writing the book, it neither protects nor pretends to protect discoveries in medicine and surgery; on the contrary, it is written for the express purpose of making them more widely known. We venture to question the opinion of "Patentee" that the patenting of surgical instruments in this country would benefit the profession at large by the exclusion of "cheap and nasty foreign-made instruments." The influx of these would only be increased by anything which raised the price of better articles, and even where infringements of patents were believed to have taken place the expense and difficulty of establishing patent rights would often prevent action being taken. In our view the interests of the medical profession and of the public are best promoted by the freest of free trade and the most unrestricted publicity in all that tends to aid the surgeon and the physician.

CREMATION AND CRIME IN INDIA.

OUR special correspondent in India writes: "Contrary to official expectation appreciable quantities of arsenic were easily detected in the ashes and bones from the scene of cremation. The loose regulations with regard to the disposal of the dead in India favour the crime of poisoning by arsenic very considerably, but the imperfect cremation of the body as generally practised would appear to hold out promise for the detection of the criminals." The Government of Madras, he adds, has called the attention of all district magistrates and of the inspector-general of police to the possibility of detecting arsenic in the charred remains of a cremated body. This step upon the part of the Government is a very proper one to take, since it cannot be supposed that the district magistrates could possess any specific knowledge of the subject. But we may say in regard to this question that it is well known to chemists that when organic matters are incinerated in the presence of arsenic the alkaline salts which are formed combine with the poison and fix it in the shape of non-volatile arsenite or arsenate. There is nothing very remarkable, therefore, in the discovery of arsenic in the charred remains of a body to which arsenic had been administered. The alkaline salts of the body formed on burning would be sufficient to fix the otherwise volatile arsenic and to convert it into a stable and non-volatile salt. In some classic toxicological researches, in fact, it was the custom to burn, say, a piece of liver from a case of suspected arsenic poisoning and to ignite it at a red heat. The residual ash was then searched for the presence of an arsenate.

THE DISTRIBUTION OF PLAGUE.

AS regards Cape Colony, the medical officer of health of the colony states that for the week ending July 18th the condition of the various places mentioned below was as follows. At Port Elizabeth 1 case of plague was discovered—namely, a European female on July 14th. At the Plague Hospital 1 European female and 1 coloured male died and 2 patients were discharged, leaving 3 cases under treatment. Plague-infected rats continued to be found in the town. At East London a native female was found dead from plague on July 16th. At the Plague Hospital there were no admissions, discharges, or deaths; 4 cases remained under treatment. At King William's Town no case of plague was discovered. At the Plague Hospital 3 patients were discharged and none remained under treatment. Plague-infected rats continued to be found in the town. At Queenstown 1 case of plague was discovered—namely, a native male on July 17th. At the Plague Hospital 1 case remained under treatment. Plague-infected rats continued to be found in the town. In Graaff-Reinet, Burghersdorp, Stockenstroom, or Riversdale no plague in man or animals was discovered. As regards Mauritius, the Colonial Office has received information that for the week ending August 6th there were 17 cases of plague and 14 deaths from the disease. As regards Hong-Kong a telegram from the Governor received at the Colonial Office on August 11th states that for the week ending August 8th there were 9 cases of plague and 9 deaths from the disease.

A MEDICAL PRACTITIONER AND A CORONER.

AT an inquest held recently at Southport upon the body of a labourer who had died in the infirmary from accidental injuries the coroner, Mr. S. Brighouse, addressing the jury, stated that the inquiry would have been held on the previous evening, much to the convenience of himself and, he had no doubt, much to the satisfaction of the relatives of the deceased, but for the action of the house surgeon at the infirmary. The report of the coroner's observations in the *Liverpool Daily Post* of July 31st continues as follows: "On Wednesday morning, July 29th, the Southport police, as usual, telephoned to his (Mr. Brighouse's) office at Ormskirk immediately they knew of the facts of the case. He was away, but Mr. Carr, at his office, who knew the routine of his work, at once replied that there would have to be a post-mortem examination, as Mr. Bentley (the house surgeon) had not liked to say that death was due to a fractured skull. Police-sergeant Clarke then telephoned to the infirmary requesting that a post-mortem examination should be made, but Mr. Bentley refused to do so without a written order. This result was communicated to Mr. Brighouse and he himself telephoned to Mr. Bentley and asked whether he insisted on a written order and he replied that he did. Mr. Brighouse then pointed out that this was the first occasion during his office as coroner on which a medical practitioner had refused to make a post-mortem at his request. He admitted that under the Coroners Act, 1887, the doctor was legally correct, but he pointed out that it was useful to obey his instructions. A summons was therefore served upon the house surgeon to make a *post-mortem*. He (the coroner) found that Mr. Bentley was qualified only in November last and always found that the newer a man was the more he fancied he was the whole Royal College of Physicians." Mr. Brighouse then invited the jury to censure the house surgeon and the jury seem to have fallen in with his request. Mr. Brighouse's comments will appear to all who consider the circumstances to have been entirely uncalled for, and the fact that they should have been made publicly and that a jury should have been asked to indorse and to support them will add no weight to them. The views of a judicial officer, such as a coroner, particularly if they are not consistent with good sense or with the law, gain nothing from the approval of the worthy citizens composing the jury, who in this case heard only the coroner's side and not that of the house surgeon. When Mr. Bentley refused to make a post-mortem examination upon the authority of a telephone message from a policeman who had had a telephone message from a Mr. Carr, who was not the coroner, Mr. Bentley acted wisely. If he had made a post-mortem examination and if it had afterwards turned out that there had been some mistake in the message transmitted or that Mr. Brighouse refused to confirm the decision of Mr Carr, Mr Bentley alone and not the coroner, or Mr Carr, or the *police sergeant, or the telephone company* would have had to bear the responsibility He might have been subjected to reproach or censure at the hands of the relatives of the deceased or of the coroner When Mr Brighouse was informed of the matter, and of the attitude adopted by the house surgeon, it was for him to forward the proper authority without delay rather than to press Mr Bentley to commit an informality the risk of which, however *small, would have affected Mr Bentley and no one else* In any case no man should be publicly attacked by a public official for refusing to take a risk in order to further the convenience either of the official or of other people The tone and temper of Mr Brighouse's remarks may be judged by his observations regarding Mr Bentley's youth On such occasions young men have far more need to keep themselves within the letter of the law than those of greater eminence Mr Bentley probably acted as he did not because he "fancied he was the whole Royal College of Physicians," but because he knew that as house surgeon of the Southport Infirmary he would have to answer to the managing body of that institution and to Mr Brighouse, the coroner, if any irregularity was brought home to him

THE CHEMISTRY OF WHISKY-AND-SODA

HOWEVER the fact may be deplored, whisky mixed with soda water is a very popular drink In Pickwickian times the favourite stimulant was brandy and water, later it was whisky and water, and now plain water is very generally replaced by aerated water The popularisation of aerated waters has undoubtedly had much to do with encouraging the drinking of whisky There are many persons who cannot drink plain whisky and water who will drink, perhaps with indiscreet relish, the same spirit mixed with sparkling water *The Scotchman or the connoisseur of whisky, not* necessarily synonymous terms, on the other hand, invariably prefers plain water with the spirit, and regards the admixture of soda water as a means of spoiling the æsthetic qualities of the whisky But in the one case flavour is sought after, while in the other merely an agreeably stimulating fluid is desired Some persons believe that soda water reduces the intoxicating effect of the spirit but probably an effervescing alcoholic liquid, judging from champagne, is more easily diffusible than a still liquid It is well known, at any rate, that very often when plain whisky and water disagree and sometimes give rise to a feeling of sickness, the substitution of effervescent *water has a quite different effect* There seems to be little doubt that some explanation of this is afforded by the fact that alcohol will dissolve three times as much carbonic acid gas as water will dissolve Alcohol would thus convey more gas to the stomach and carbonic acid gas in solution admittedly promotes the chemical processes of digestion and acts as a sedative in the stomach Champagne is well known to be useful in sickness in allaying irritability of the stomach by virtue of the carbonic acid gas it contains Apart therefore from the pleasing sparkling qualities of aerated water and its sharp, agreeable taste there would appear to be a sound physiological reason why whisky with soda water is preferred by the many to whisky with plain water

THE CLIMATIC ELEMENT IN THE TREATMENT OF PULMONARY TUBERCULOSIS

THE history of the treatment of pulmonary tuberculosis is an interesting and familiar one Apart from the countless drugs which have been from time to time vaunted as "cures" of the disease, warm climates, cold Alpine resorts, sea voyages, and residence in various parts of the globe have all had their supporters as suitable and desirable, if not indispensable, elements for the treatment of consumption Within the last few years, however, the results obtained in the sana*toriums in this country have led many physicians to believe* that climate does not hold such an invaluable position in the therapeutics of pulmonary disease as was formerly insisted upon The site of a sanatorium is all important, but evidence is accumulating to show that it is not absolutely necessary to banish a sufferer from pulmonary tuberculosis from his country and friends and to send him for months or years to the colonies or foreign countries On the other hand, *there is reason to believe that treatment in this country* has certain advantages, especially to those whose circumstances render it imperative that they should subsequently live in England The treatment is then carried on under the same climatic influences as those to which they will be subsequently subjected and they will not be forced to accustom themselves to the manner of living followed in other countries The paper which we publish in another column on "Results Obtained at the Mundesley Sanatorium in the Treatment of Pulmonary Tuberculosis," by Dr F W Burton Fanning and Mr W J Fanning, demonstrates the very satisfactory results which have been obtained in the Mundesley Sanatorium One paragraph in this communication is well worthy of attention Several patients on leaving the sanatorium went to various foreign health resorts, more or less renowned for the treatment of consumption The subsequent progress *of these patients was closely watched and in no single* instance was the course of the disease materially different after going away from what it would presumably have been had the patient remained in his own country We do not wish to imply that many foreign health resorts are not excellent places to which tuberculous patients may be sent if other circumstances permit, but the results of the English sanatoriums offer great hopes to those patients who are not able, from financial or family reasons, to go abroad In short, it appears that in the treatment of many cases where foreign residence would not long ago have been considered an essential step, equally satisfactory results may be obtained in this country We thoroughly agree, however, with the writers of the paper that there is one class of consumptive for whom a better climate than England can be found—namely, those who suffer from old standing pulmonary tuberculosis with defective circulations and inability to stand cold, catarrhal symptoms, and perhaps with affection of the kidneys and other internal organs. For such subjects a milder climate is indicated.

THE RAILWAY DISASTER IN PARIS

THE imagination could hardly paint anything more awful than the disaster which happened on the underground electric railway in Paris on August 8th The occurrence has certainly no parallel in the history of electric railways and the confidence of the public has naturally sustained a shock in regard to the security of this mode of travelling It cannot be gainsaid that now and again evidences of the fearful results that might arise through a diversion of the electric potentialities on electric railways have presented themselves We have written strongly in these columns, and more than once, on the risks to human life which "short circuiting" may involve and on the *extreme measures which should be adopted to* prevent the all powerful electric current from taking the short path The "boxes" in our streets catch fire, "leads" in the house get hot and cables fuse on the railways and tramways—all through short circuiting being established by a defect in the insulation Short-circuiting is, in fact, the greatest source of anxiety to the electrical engineer, and however well the insulation be done various causes may be at work conspiring to its breakdown. The disaster in Paris seems to have been primarily due *to an attempt to push* to the terminus a train on which admittedly the motor was "working badly." Passengers in this train had been advised to get out, but it appears that trains loaded with a human freight were employed to get the broken-down train to the end of the journey. There is little doubt, therefore, that the defective motor was the cause of a disastrous short-circuiting, with the result that the train and the succeeding trains caught fire in the tunnel. Stifling fumes arose, the electric lights, of course, were extinguished, and the whole electric system became a jumble of fused wires. The mental agony of the victims thus entombed must have been terrible. The disaster has cost over 80 lives and a black shadow of grief has overspread the French capital. It is to be hoped that the official inquiry, which must necessarily ensue, will clear up the actual cause of the calamity, at which we have made a confident surmise, and that the awful lesson which such an inquiry is bound to teach will not be lost to the world.

MR. BURDETT-COUTTS ON THE ARMY MEDICAL VOTE.

WE have received a printed copy of the speech made by Mr. Burdett Coutts, M.P., in the House of Commons on August 3rd, on the vote for the Army Medical Establishment. From this it would appear that his speech on that occasion was much longer, more important, and more carefully thought out than would be gathered from a perusal of the published reports of it which appeared in the daily press. We have no desire to reopen a public controversy of a very painful character, but some comments on our part seem to be called for. To begin with, we may say that, after having carefully read and considered Mr. Burdett-Coutts's recent speech, we are quite in sympathy and agreement with a great deal that is contained in it. It was as to the time, form, and method which were adopted and followed by Mr. Burdett-Coutts with the view of arousing public attention at the beginning that exception was taken. THE LANCET was never among those who sought to stifle inquiry into the deplorable circumstances set forth in the *Times*, the publication of which naturally gave rise to an almost universal feeling of indignant dismay. As time went on, and all the facts were elicited as to the actual conditions which brought about those deplorable occurrences, it became more and more apparent how very wide of the mark were many of the allegations and speculations that had been put forward. There is no need, however, to go into all this now. We dealt with the whole subject and with the needs and reform of the Army Medical Service, together with measures for the coöperation of the civil profession in time of war, in a series of articles at the time and are glad to think that much of what we then suggested is now being done. Without agreeing with every word that Mr. Burdett-Coutts said, we consider that he made an able and important statement which evidently impressed Mr. Brodrick not a little.

ECTOPIC (INTERSTITIAL) PREGNANCY COMPLICATING UTERINE PREGNANCY.

THE complication of uterine by ectopic pregnancy is very rare. In the *New York Medical Journal* of June 27th Dr. J. B. Morrison has published a case which derives additional interest from the fact that the ectopic pregnancy was interstitial. A woman, aged 35 years, who had had one child 11 years before and since then four abortions, came to him on Sept. 4th, 1902, saying that she had had a miscarriage on the previous day. She produced a fœtus of about eight weeks' development which had come away. The uterus was large, of about the size of an orange. On the right an ovoid mass one-half of the size of the uterus and continuous with it was felt. It was thought to be a mural fibroid or an old inflammatory lesion, perhaps a pyosalpinx adherent to the uterus. The cervix was soft and admitted the tip of the index finger. Contrary to advice the patient went away to the country. After 15 days she returned with a history of chill, fever for two or three days, and a foul discharge. Under anæsthesia the uterus was curetted. Some clots and shreds of decidua were removed and hot permanganate of potassium solution was used for irrigation. Two hours later she had a rigor and a temperature of 105° F. In the afternoon there was another chill and the temperature rose from 102° to 105·5°. Agonising pain developed in the position of the right tube and ovary. Morphine was given and cold was applied. The temperature fell to 101°, but on the following morning it rose again to 105° and the pain became as intense as ever and for the first time paroxysmal. Tenderness rendered examination almost impossible. The symptoms pointed to acute peritonitis but the facial aspect between the paroxysms was good, the respiration was not shallow, and the pulse ranged between 88 and 100. The history seemed to negative extra-uterine pregnancy. For two days the temperature ranged between 102° and 104° and the pain was controlled by morphine. On the fourth morning profuse uterine hæmorrhage occurred and the abdominal rigidity disappeared. The mass on the right of the uterus had diminished by one-half and during the examination a fœtus of from 10 to 12 weeks' development was expelled. Under anæsthesia the cervix was dilated. The interior of the uterus was everywhere smooth, but on the right the finger passed into a cavity a little larger than an egg, to the edges of which pieces of tissue appeared to be adherent. On the floor the finger slipped over a smooth mass which proved to be the placenta. As much of it as possible was removed and the cavity was irrigated. The pain ceased entirely. The irrigation was repeated daily for five days and several pieces of placenta came away. The temperature fell and for five days ranged between 99° and 100°. There was a serosanguineous discharge. Beckman divides cases of interstitial gestation into two groups: (1) tubo-uterine, in which the communication with the uterine cavity persists, resulting in early abortion into the uterus; and (2) true interstitial, in which the ectopic gestation is separated from the uterine cavity by a muscular septum and the sac ruptures into the peritoneal cavity or uterus. Dr. Morrison's case evidently belonged to the second class. The shreds felt at the orifice of the cavity were probably the remains of the ruptured septum. Perhaps the curetting, by weakening the septum as well as by producing uterine contractions, predisposed to the rupture. Before this occurred the diagnosis was practically impossible.

THE LANCASHIRE COUNTY COUNCIL AND VACCINATION.

AT the meeting of the Lancashire County Council held at Preston on August 6th the following motion, which was recommended by the public health committee, was discussed:—

> (*a*) That primary vaccination should be made compulsory; (*b*) that revaccination at or about the age of 12 years should be made compulsory; (c) that the control of the carrying out of the Vaccination Acts should be transferred from the boards of guardians to the county councils; and (*d*) that greater facilities for the supply of pure glycerinated lymph should be afforded.

Mr. R. Sephton, the chairman of the committee, in proposing the motion said that the large number of cases of small-pox made additional measures necessary and there seemed to be no doubt that efficient vaccination was the only trustworthy preventive. He stated that out of 416 cases reported during the quarter 280 patients had been vaccinated and there were 11 deaths, while of 109 non-vaccinated patients 15 died. An amendment was proposed by Alderman Snape referring the motion for further consideration. "He thought it would be unwise to adopt a series of such extremely drastic proposals, especially when it was remembered that a large number of people conscientiously objected to vaccination." The chairman, Sir John Hibbert, also demurred to the motion and the amendment was carried. It is a courteous euphemism to speak of the objections to vaccination as they are ordinarily presented to the magistrates' attention as "conscientious," as they are so often the result of ignorance or a contrary spirit. There are some people who are separated from their more "level-headed" neighbours by a peculiarity of mental constitution which renders them apt to take up with odd notions about many things besides vaccination and to be marked by many eccentricities, most of which may be harmless. If the possible consequences were not so serious the country could afford to let them revel in their fads to their hearts' content, but when their doing so is a constant danger to the health and the lives of the community it becomes a serious question whether the comparatively small number of objectors should be allowed to possess a weapon so dangerous.

THE RESULTS OF THE SURGICAL TREATMENT OF TUMOURS OF THE BRAIN.

Professor M. Allen Starr of New York has published in the *Journal of Mental and Nervous Diseases* for July a valuable paper summarising the results of the surgical treatment of tumours of the brain as practised during the past ten years and drawing the conclusions necessary for our future guidance in regard to diagnosis and treatment. In 1893 he was able to collect from literature 70 cases of tumour of the brain in which an operation had been undertaken. As a knowledge of the possibility of operation became more widespread, says Professor Starr, and the technique of the surgery of the brain more perfect reports of such operations grew more frequent and it was possible to collect 365 cases up to Jan. 1st, 1903. The results of operation in these 365 cases are tabulated as follows :—

Results of operation.	Number of cases of cerebral tumour.	Number of cases of cerebellar tumour.
Tumour removed and patient recovered	152	16
Tumour removed and patient died	51	8
Tumour found but not removed	21	6
Tumour not found	91	20
Total	315	50

There are two elements which render the chances of success in the operation for tumours of the brain better at present than formerly. First, the accuracy of diagnosis is more possible. Given a history of a slowly progressing disease, with symptoms of headache, vomiting, vertigo, sensations of cerebral discomfort, progressive emaciation and feebleness, and optic neuritis, and the only probable hypothesis is the existence of a tumour of the brain. Hence the diagnosis of the nature of the disease is not difficult. Secondly, the possibility of localising tumours has also become more definite within the last 20 years. The occurrence of such symptoms as aphasia, local spasm and hemiplegia, hemianopsia, cerebellar staggering, and mental disturbance would help to locate the tumour, while the absence of these localising symptoms would make it evident that the tumour was inaccessible. The use of electrical saws has during the past three years largely superseded the use of the trephine, gouge, and chisel, and access to the brain can now be obtained in from six to eight minutes after the incision through the scalp has been made. Usually, adds Professor Starr, the brain can be exposed within ten minutes of the time of the beginning of the operation, whereas in older methods from 18 to 25 minutes were often expended in this part of the operation. Moreover, excision of a tumour which may reach to a depth of one or two inches below the cerebral surface, is now freely attempted and performed, and he considers that the statistics of the next ten years will show a very much greater percentage of successes than do the statistics up to the present time. The operation for cerebellar tumours is attended with great difficulty and danger. The surface of the lateral cerebellar lobes accessible to the trephine or the saw is very rarely the seat of a cerebellar tumour. Such tumours lie either in the middle lobe of the cerebellum, directly beneath the tentorium, a point which cannot be reached from the lower surface of the cerebellum, or else they lie in the sulci between the cerebellum and the pons and medulla oblongata upon the base of the brain, a point which is equally inaccessible. For this reason, concludes Professor Starr, failures are numerous in operations for cerebellar tumour, and after a considerable experience he concludes that it seems futile to attempt this operation. Occasionally a tumour may develop in one part of the brain and give rise to localising symptoms of a misleading character referable to another part of the brain. The local symptoms are therefore not infallible in their indication and this may occasionally be a cause of failure. Soft and infiltrating tumours such as gliomata are difficult to remove entirely, and this variety of tumour is liable to recur even if removed in part. The dangers of hæmorrhage and of meningitis are less dreaded to-day than formerly, proper asepsis preventing the latter complication in all cases.

THE HOME FOR EPILEPTICS AT MAGHULL.

THE fourteenth annual report of the Home for Epileptics at Maghull, near Liverpool, includes the history and medical statistics of the institution for the year ending Dec. 31st, 1902. At the commencement of the year there were 138 patients under care and treatment and at the end of the year there were 174. The class of patients received includes persons suffering from epilepsy but not from insanity. Epileptics deemed to be dangerous to themselves or others are not admitted. Instruction is given to the younger patients who are provided with the advantages of a regular day school and winter evening continuation classes. A local fire brigade, composed chiefly of patients, has been in existence for some years and recently on the occasion of a fire occurring in a barn attached to a farmhouse on the adjoining estate, the members of the fire brigade proved themselves efficient and quick in extinguishing the fire and in saving the main farm building itself. The committee of management now owns or rents about 100 acres of land where the patients are trained in agriculture. The farm account showed a profit for the year of £150, a fact which seems to show that by utilising the labour of the inmates the home can be made in a measure self-supporting. The grounds at Harrison Home—a new building erected about a year ago for first-class patients—have been suitably laid out with ample tennis and croquet lawns, shrubbery, and flower beds. A billiard-room and other comforts of a first-class home are provided. The male patients are trained to steady work in the fields and gardens or about the houses and the female patients to house and laundry and garden work. The patients are also trained in basket-making, joinery, choir singing, and brass band music The subjects taught in the day school and in the evening continuation classes include reading, writing, arithmetic, drawing, singing, history, geography, wood-carving, drill, and kindergarten work. The medical report states that amongst the 94 female patients the total number of fits recorded during the year was 10,103. Of these 5212 were slight attacks. The more

THE NEW WATER-SUPPLY OF MARGATE.

THE municipal authorities of Margate have now dealt successfully with two leading requirements of sanitation: they have provided for the effectual disposal of the sewage of the town and for an abundant supply of pure water for drinking purposes. In 1890 a comprehensive, and what has since proved to be an efficient, main drainage scheme was provided and on August 6th last the new public water-supply for the town was inaugurated by the mayor. It had been found that the new sewage works caused heavy demands upon the water-supply and not only did the existing supply run short but its quality for drinking purposes seriously deteriorated. It became evident that as the wells *were more vigorously pumped to meet increasing needs percolation* of the sea water happened, with the result that the drinking water of Margate soon assumed a brackish taste and the Tivoli, the original source of supply, was found to contain as much mineral salts as 172·69 grains per gallon. Attempts were made, presumably for economical reasons, to obtain auxiliary supplies by sinking wells in the neighbourhood of the existing works but with limited success, while no appreciable advance was made as regards quality. The water was brackish, as might be supposed seeing that the water line was reduced so low that the wells, at any rate in the summer season, were nearly always pumped below the sea-level and frequently they were exhausted.

Such a condition of things was obviously a great reproach to a town like Margate which enjoys a deserved reputation in regard to the tonic and invigorating properties of its air. *Strictly speaking, to describe a place as a health resort with* the knowledge that its water-supply was not only short but objectionable in quality would be incongruous. This aspect of the question was, however, not at first seriously appreciated by the inhabitants of the town nor did they see how their interests could be affected. Happily, however, ignorance as to the serious issues which such a position might involve disappeared, such opposition to reform as existed was broken down, and the authorities at Margate may be warmly congratulated on having brought a scheme promoted in the best interests of the town to a satisfactory conclusion. A considerable amount of prejudice and misunderstanding existed, for when the facts were placed before the electorate, together with the proposal to go to an abundant catchment area some 15 miles away from the town in the direction of Canterbury and a poll was taken in February, 1901, the result was that the *scheme* was *rejected.* A year later, *owing* to a well-organised movement, in which the representatives of the medical profession at Margate had a considerable share, the owners and ratepayers gave their consent by a substantial majority. We heartily congratulate the medical men at Margate upon this important sanitary triumph which after much uphill work they helped to secure. The Wingham scheme, as it is called, was proposed by Mr Albert Latham, the borough engineer, after he had received an instruction from the corporation to inquire into the subject. This scheme gained the approval of the well-known water engineers, Mr. Charles Hawksley and Mr. Edward M. Eaton, and of the geologist, Mr. W. Whitaker, who in their report wrote: "We consider that this scheme will afford an ample supply of water, good and admirable in quality, and sufficient in quantity to meet the growing demands of Margate for many years to come." Subsequently the Act of Parliament authorising the scheme received the Royal Assent on August 6th, 1902, so that the completion of the undertaking has, officially speaking, occurred exactly within a year of the formal leave to commence work. As a matter of fact, the works were started on Oct. 21st, 1902, and the new water was supplied to Margate for the first time on July 16th, 1903. The entire cost will be about £120,000.

The village of Wingham, where the new pumping station is situated, lies near the outcrop of the line of chalk hills extending from Canterbury to Dover. The new pumping station is about a mile south of the village and is on the main road from Wingham to Adisham railway station on the South-Eastern Railway. Behind the pumping station the hills continue to rise until the ridge is reached at a distance of four miles, the water from t[illegible] to feed the adits at the st[illegible] *yards of adits* have been driven [illegible] per day are furnished by them. Powers, however, have been obtained for driving no less than three miles of adits if necessary in order that the *supply may be abundant both for* present and future requirements. The amount required for the supply of Margate at the height of the season (at the present time) is 1,250,000 gallons per day. The well at the pumping station is sunk to ordnance datum, which is 130 feet below the surface of the ground, and the adits are driven in two directions at that level, rising slightly as they penetrate the ground, running away from the well. It is stated that within a week after the heavy pumping by the contractors' pumps had ceased for the purpose of driving the adit the water rose to within two feet of the height at which it had stood before this heavy pumping was started. This pumping was continued for six months. Special precautions have been adopted by the corporation to prevent the pollution of the environment. It is, however, confidently felt that there is not much risk on this head as the district forming the *watershed is very thinly populated. The rising main from* the pumping station at Wingham to Margate is 14 miles in length and 18 inches in diameter, this size being considered equal to the demands of the town for many years. The main is carried across the river Stour by being slung to the new bridge recently erected over that river at Pluck's Gutter by the local authorities, including th[illegible] supply from [illegible] tion entered [illegible] which lie along the route of the main. There are thus 18 parishes and a high and low service tank have been erected for the supply of these parishes, a scheme which involves the laying out of 30 miles of mains, of which nine miles have already been laid, the rest being in progress. The quality of the new water-supply is quite satisfactory according *to both the results of bacteriological and chemical analysis,* the former having been undertaken by Dr. Klein and the latter by Mr. Sidney Harvey, F.I.C., the analyst to the city of Canterbury and to the boroughs of Dover, Faversham, and Margate. The water is of the usually pure type derived from the chalk and shows an irreproachable organic purity similar to that of the water supplied from chalk wells by the Kent Water Company. The hardness is nearly all removed by boiling, for out of a total of 21·3 grains per gallon only 2 2 grains remain after boiling. Altogether the new water-supply to Margate belongs to the class of excellent drinking water.

Considerable praise is due to those who were responsible for carrying out the engineering arrangements, to those representing the corporation who successfully piloted the Bill through Parliament, and to those who (in spite of the *opposition* and prejudice which they had to face) persevered in the best interests of the public health in bringing the scheme to an accomplished fact. Margate may be congratulated upon having removed a source of reproach upon its health which sooner or later would have seriously militated against the prosperity which it enjoys.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are the awards recommended by the committee of distribution for the year 1903:—

GENERAL HOSPITALS.

Charing Cross Hospital, £1083 6s. 8[illegible]
German [illegible]
£1121 5s [illegible]
Italian [illegible]
London [illegible]
£563 15s [illegible]
London [illegible]
£953 6s. [illegible] Miller Hospital and
Royal [illegible] London Hospital,
£476 13s. [illegible] n's Jubilee Hospital,
£151 13s [illegible] t. George's Hospital,
£1137 10s [illegible] £276 5s.; St. Mary's
Hospital, [illegible]; Seamen's Hospital
Society, [illegible] Convalescent Home,
£2415 1[illegible] University College
Hospital, [illegible] 1s 8d.; West Ham
Hospital, £563 6s. 8d., West London Hospital, £1170, Westminster Hospital, £1451 13s. 4d.

CHEST HOSPITALS.

City of London Hospital for Diseases of the Chest, Victoria-park, £1105; Hospital for Consumption, Brompton £1733 6s. 8d.; Mount Vernon Consumption Hospital, Hampstead, £780, Royal Hospital for Diseases of the Chest, *City road, £487 10s.; Royal National Hospital* for Consumption (Ventnor), £379 3s. 4d.

CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease, W.C., £303 6s. 8d.; Banstead Surgical Home, £27 1s. 8d.; Barnet Home Hospital, £48 15s.; Belgrave Hospital for Children, S.W., £113 15s.; Cheyne Hospital for Incurable Children, S.W., £119 3s. 4d.; East London Hospital for Children, Shadwell, E., £931 13s. 4d.; Evelina Hospital for Sick Children, Southwark, S.E., £216 13s. 4d.; Home for Incurable Children, Maida-vale, W.C., £81 5s.; Home for Sick Children, Sydenham, S.E., £140 16s. 8d.; Hospital for Sick Children, Great Ormond-street, W.C., £975; North-Eastern Hospital for Children, Hackney-road, N.E., £390; Paddington-green Hospital for Children, W., £297 18s. 4d.; St. Mary's, Plaistow, E., £281 13s. 4d.; St. Monica's, Brondesbury, N.W., £86 13s. 4d.; Victoria Hospital for Children, King's-road, Chelsea, S.W., £476 13s. 4d.; Victoria Home, Margate, £48 15s.; Hospital for Hip Disease, Sevenoaks, £48 15s

LYING-IN HOSPITALS.

British Lying-in Hospital, Endell-street, W.C., £16 5s.; City of London Lying-in Hospital, City-road, E.C, £100; Clapham Maternity Hospital, £21 13s. 4d.; East-end Mothers' Home, £75 16s. 8d.; General Lying-in Hospital, Lambeth, S.E., £32 10s.; Queen Charlotte's Lying-in Hospital, Marylebone-road, W., £476 13s. 4d.

HOSPITALS FOR WOMEN.

Chelsea Hospital for Women, S.W., £379 3s. 4d.; Hospital for Women, Soho-square, W., £130; Grosvenor Hospital for Women and Children, Vincent-square, S.W., £162 10s.; New Hospital for Women, Euston-road, W.C., £325; Royal Hospital for Children and Women, Lambeth, S.E., £216 13s. 4d.; Samaritan Free Hospital, Marylebone-road, W., £438 15s.

OTHER SPECIAL HOSPITALS.

Cancer Hospital, Brompton, S.W., £325; Middlesex Hospital, Cancer Wing, £325; London Fever Hospital, Islington, N., £158 6s. 8d.; Gordon Hospital for Fistula, Vauxhall Bridge-road, S.W., £21 13s. 4d.; St. Mark's Hospital for Fistula, City-road, E.C., £130; National Hospital for Diseases of the Heart, Soho-square, W., £86 13s. 4d.; Female Lock Hospital, Harrow-road, W., £227 10s.; Hospital for Epilepsy, Paralysis, and Other Diseases of the Nervous System, Regent's-park, N.W., £32 10s; National Hospital for the Paralysed and Epileptic, W.C., £1148 6s. 8d.; West-End Hospital for Diseases of the Nervous System, £216 13s. 4d.; Central London Ophthalmic Hospital, Gray's-inn-road, W.C., £184 3s. 4d.; Royal Eye Hospital, St. George's-circus, S.E., £313 3s. 4d.; Royal London Ophthalmic Hospital, City-road, E.C., £942 10s.; Royal Westminster Ophthalmic Hospital, Charing-cross, W.C., £184 3s. 4d.; Western Ophthalmic Hospital, Marylebone-road, W., £54 3s. 4d.; City Orthopædic Hospital, Hatton-garden, E.C., £232 18s. 4d.; National Orthopædic Hospital, Great Portland-street, W., £178 15s; Royal Orthopædic Hospital, Oxford-street, W., £81 5s.; Royal Sea Bathing Hospital, Margate, £325; St. John's Hospital for Diseases of the Skin, £54 3s. 4d.; St. Peter's Hospital for Stone, Covent-garden, £92 1s. 8d.; Central London Throat and Ear Hospital, Gray's-inn-road, W.C., £54 3s. 4d.; Hospital for Diseases of the Throat, Golden-square, W., £108 6s. 8d.; London Throat Hospital, Great Portland-street, W., £32 10s.; Metropolitan Ear, Nose, and Throat Hospital, Grafton-street, W., *nil*; Royal Ear Hospital, Frith-street, W., £10 16s. 8d.; Dental Hospital of London, Leicester-square, W.C., £195; National Dental Hospital, 149, Great Portland-street, W., £43 6s. 8d.

CONVALESCENT HOSPITALS.

Metropolitan Convalescent Institution, Sackville-street, W., £704 3s. 4d.; Bexhill Convalescent Home, Sackville-street, W., £379 3s. 4d.; All Saints' Convalescent Hospital, Eastbourne, £433 6s. 8d.; Ascot Priory Convalescent Home, £70 8s. 4d.; Barnet, £48 15s.; Brentwood, for Children, £13; Charing Cross Hospital Convalescent Home, Limpsfield, £99 13s. 4d.; Chelsea Hospital for Women Convalescent Home, St. Leonards, £43 6s. 8d.; Deptford Medical Mission Convalescent Home, Bexhill, £32 10s; Mrs. Gladstone Convalescent Home, Mitcham, £65; Friendly Societies' Convalescent Home, Dover, £75 16s. 8d.; Hahnemann Convalescent Home, Bournemouth, £48 15s; Hanwell Convalescent Home, £21 13s. 4d; Herbert Convalescent Home, Bournemouth, £21 13s. 4d.; Herne Bay Baldwin-Brown Convalescent Home, £32 10s.; Homœopathic Convalescent Home, Eastbourne, £21 13s. 4d.; King's College Hospital Convalescent Home, Hemel Hampstead, £70 8s. 4d.; Mrs. Kitto's Convalescent Home, Reigate, £65; Mary Wardell Convalescent Home for Scarlet Fever, £97 10s.; Morley House Convalescent Home for Working Men, £189 11s. 8d.; Police Seaside Home, Brighton, £59 11s. 8d.; St. Andrew's Convalescent Home, Clewre, £130; St Andrew's Convalescent Home, Folkestone, £195; St. John's Home for Convalescent and Crippled Children, Brighton, £37 18s. 4d.; St. Joseph's Convalescent Home, Bournemouth, £70 8s. 4d.; St. Leonards-on-Sea Convalescent Home for Poor Children, £86 13s. 4d.; St. Mary's Convalescent Home, Shortlands, £21 13s. 4d; St. Michael's Convalescent Home, Westgate-on-Sea, £37 18s. 4d.; Seaside Convalescent Hospital, Seaford, £108 6s. 8d.; Richmond House, Worthing, £27 1s. 8d.

COTTAGE HOSPITALS.

Acton Cottage Hospital, £75 16s. 8d.; Beckenham Cottage Hospital, £86 13s. 4d.; Blackheath and Charlton Cottage Hospital, £86 13s. 4d.; Bromley, Kent, Cottage Hospital, £130; Bushey Heath Cottage Hospital, £48 15s.; Canning Town Cottage Hospital, £54 3s. 4d.; Chislehurst, Sidcup, and Cray Valley Cottage Hospital, £86 13s. 4d.; Coldash Cottage Hospital, £19 10s.; Eltham Cottage Hospital, £65; Enfield Cottage Hospital, £75 16s. 8d.; Epsom and Ewell Cottage Hospital, £70 8s. 4d.; Hounslow Cottage Hospital, £48 15s.; Livingstone Cottage Hospital, £97 10s.; Mildmay Cottage Hospital, £32 10s.; Reigate and Redhill Cottage Hospital, £124 11s. 8d.; Sidcup Cottage Hospital, £32 10s.; Tilbury (Passmore Edwards) Cottage Hospital, £32 10s.; Willesden Cottage Hospital, £140 16s. 8d.; Wimbledon Cottage Hospital, £65; Woolwich and Plumstead Cottage Hospital, £59 11s. 8d.

INSTITUTIONS.

Bolingbroke Hospital, £249 3s. 4d.; Establishment for Gentlewomen, Harley-street, £119 3s. 4d.; St. Saviour's Hospital and Nursing Home, £130; National Sanatorium for Consumption, Bournemouth, £97 10s.; Invalid Asylum, Stoke Newington, £48 15s.; Firs Home, Bournemouth, £21 13s. 4d.; St. Catherine's Home, Ventnor, £27 1s. 8d.; Friedenheim Hospital for the Dying, £325; Oxygen Home, Fitzroy-square, £37 18s. 4d.; Santa Claus Home, Highgate, £59 11s. 8d.; St. John's Hospital, Lewisham, £162 10s.; Home for Consumptive Females, *nil.*

DISPENSARIES.

Battersea Provident Dispensary, £92 1s. 8d.; Billingsgate Medical Mission, £21 13s. 4d.; Blackfriars Provident Dispensary, £21 13s. 4d.; Bloomsbury Provident Dispensary, £14 1s. 8d.; Brixton, &c., Dispensary, £56 6s. 8d.; Brompton Provident Dispensary, £17 6s. 8d.; Camberwell Provident Dispensary, £65; Camden Town Provident Dispensary, £14 1s. 8d.; Chelsea, Brompton, and Belgrave Dispensary, £57 8s. 4d.; Chelsea Provident Dispensary, £13; Child's Hill Provident Dispensary, £13; City Dispensary, £54 3s. 4d.; City of London and East London Dispensary, £16 5s.; Clapham General and Provident Dispensary, £23 16s. 8d.; Deptford Medical Mission, £23 16s. 8d.; Eastern Dispensary, £32 10s.; East Dulwich Provident Dispensary, £37 18s. 4d.; Farringdon General Dispensary, £43 6s. 8d.; Finsbury Dispensary, £48 15s.; Forest Hill Dispensary, £43 6s. 8d.; Greenwich Provident Dispensary, £27 1s. 8d.; Hackney Provident Dispensary, £13; Hampstead Provident Dispensary, £43 6s. 8d.; Holloway and North Islington Dispensary, £54 3s. 4d.; Islington Dispensary, £59 11s. 8d.; Kensal-town Provident Dispensary, £10 16s. 8d; Kensington Dispensary, £81 5s.; Kilburn, Maida-vale, and St. John's-wood Dispensary, £43 6s. 8d.; Kilburn Provident Medical Institution, £28 3s. 4d.; London Dispensary, Spitalfields, £17 6s. 8d.; London Medical Mission, Endell-street, £108 6s. 8d.; Metropolitan Dispensary, £56 6s. 8d.; Notting-hill Provident Dispensary, £14 1s. 8d.; Paddington Provident Dispensary, £32 10s.; Portland Town Dispensary, £21 13s. 4d.; Public Dispensary, Clare Market, W.C., £43 6s. 8d.; Queen Adelaide's Dispensary, £29 5s; Royal General Dispensary, £27 1s. 8d.; Royal Pimlico Provident Dispensary, £54 3s. 4d.; Royal South London Dispensary, £52; St. George's and St. James's Dispensary, £54 3s. 4d.; St. George's, Hanover-square, Provident Dispensary, £32 10s.; St. John's-wood Provident Dispensary, £45 10s; St. Marylebone General Dispensary, £41 3s. 4d.; St. Pancras and Northern Dispensary, £34 13s. 4d.; South Lambeth, Stockwell, and North Brixton Dispensary, £43 6s. 8d.; Stamford-hill, Stoke Newington, Dispensary, £65; Tower Hamlets Dispensary, £48 15s.; Walworth Provident Dispensary, £16 5s.; Wandsworth-common Provident Dispensary, £10 10s. 8d.; Westbourne Provident Dispensary, £16 5s.; Western Dispensary, £59 11s. 8d.; Western General Dispensary, £135 8s. 4d.; Westminster General Dispensary, £41 3s. 4d.; Whitechapel Provident Dispensary, £28 3s. 4d.; and Woolwich Provident Dispensary, £19 10s.

Looking Back.

FROM

THE LANCET, *SATURDAY*, AUGUST 13, 1825.

FROM

LECTURES

ON THE

PRINCIPLES AND PRACTICE OF PHYSIC,

BY DR. ARMSTRONG.

Theatre of Anatomy, Webb Street.

The following is an Abstract[1] *of Dr. Armstrong's Lectures on Chronic Affections of the Fauces, Air Passages, Lungs, and Heart.*

Pulmonary Consumption.

Dr. ARMSTRONG remarked, that pulmonary consumption was most common in individuals under twenty-five years of age, but that he had seen many cases between that age and thirty-five, and several at a much later period of life than the last-mentioned. He considered the delicacy of young persons as the cause by which they were most predisposed, and observed, that two circumstances were almost always found to concur in the production of pulmonary consumption, namely, a breaking up or giving way of the general strength, and the application of what is called cold, under that condition of the body. He adduced several cases in proof of this assertion, some of which arose in this manner from copious bloodletting, some from spare diet, some from mental anxiety, some from over-exertion, some from night-watching, some from disorders which interrupted the digestion, and others from the like occasions. He said that the same reasoning was applicable to the production of the disease in the lower animals, for that sheep, young horses, and rabbits, being badly fed and exposed to cold at the same time, were apt to become consumptive. Dr. ARMSTRONG considered this view of the subject as of the highest importance to society in a preventive point of view, and especially to those families in which the tendency to consumption hereditarily prevailed; for he contended that this complaint might be prevented in such families by maintaining the general strength through a nutritious diet and other regimenal points, and by giving tone to the surface of the body, first by tepid and next by cool sponging or ablution, but in this variable climate he strongly recommended the use of thin flannel, even in the summer, and of fleecy hosiery in the winter and spring, next the surface, where the least suspicion of, or tendency to phthisis existed The development of phthisis, according to his observation, was always preceded by some change in the functions of the skin, which became more faded than natural, and by some consentaneous irritation of the internal mucous membranes, especially of the intestinal canal and of the bronchial passages, but he admitted that the local irritation which preceded the attack was occasionally in the pleura or lungs

---

[1] An excerpt only is transcribed.

Dr ARMSTRONG spoke in strong terms against the empirical use of mercury in the British metropolis for many supposed hepatic or duodenal affections, and was fully confident that, by breaking up the general strength, and by disordering the functions of the skin, it was a very common cause of inducing phthisis, aided by the operation of our changeable climate

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of London —Some indication of the remarkable changes as regards population which are taking place in the City of London may be gathered from the fact that on April 1st, 1891, the *night* population was 37,702, whereas in 1901 the night population had fallen to 26,923 But these figures convey a very misleading conception of the great importance of sanitary administration in the City of London as regards the health not only of the metropolis but of that vast migratory population which is dependent upon the City for a livelihood, one which inhabits an area far beyond the limits of what is called "Greater London" Perhaps one of the most important health functions to which the sanitary authority of the City can devote itself is the control of foodstuffs, and in this connexion we are glad to see that attention has recently been directed to the condition of the kitchens of restaurants Dr W Collingridge reports that out of 155 kitchens inspected 76 were in the basement, and although this is by no means uncommon in London generally it is obviously preferable that such places shall be in situations where abundance of light and air can be procured and where ventilation can be carried out by other means than through a street grating which acts as a variety of scraper for the foot passengers passing over it. It is not difficult to understand how food stored, although only for a short time, in these kitchens might be expected to contain bacteria of animal origin, and the fact that in 26 instances the water-closet opened or was ventilated directly into the kitchen is sufficient to make the public eschew such restaurants until these conditions are remedied We are told that in one case the lobby of the water closet was used for the storage of meat This question of the storage of food intended for human consumption does not receive as much attention as it deserves and we should be glad to see some by laws drawn up for regulating the position of pantries, &c., in all new houses The City has now followed the example set by Kensington and other London boroughs and appointed a woman sanitary inspector and the medical officer of health is well pleased with the work which she is doing A certain portion of this work has consisted in the inspection of ladies' waiting rooms at all the railway stations in the City and we wish that every sanitary authority throughout the country would have these conveniences for both sexes periodically inspected We are glad to see that Miss Safford, the newly appointed sanitary inspector to the City, has drawn the attention of employers to the importance of providing sanitary conveniences in offices, more especially those in which women are employed as typewriters and clerks. She states that in "the very large majority of these offices there is no sanitary accommodation provided for the women employed" Among other nuisances which obtain in the City those created by smoke are being vigorously attacked Dr Collingridge gives an interesting account of the removal of the remains of convicts who had died or been executed at Newgate Gaol By an order of the Home Secretary the remains of 92 persons were thus removed under the superintendence of the medical officer of health The experience gained by the exhumation referred to seems to have satisfied Dr Collingridge that the present method of dealing with the bodies of those who have undergone capital punishment is, to say the least of it, eminently unwholesome. It seems, however, from an interesting passage which is quoted in the report before us from a work on the law of burial that the bodies of murderers were at one time denied burial altogether, and when this prohibition was withdrawn it was enacted that the body of every murderer should either be dissected or hung in chains The present law upon this subject provides for an alternative to intramural burial and Dr Collingridge suggests that it might be taken advantage of We have no space to deal at all freely with the subject of the destruction of unsound food but it may be noted that 362 cartloads of such food were destroyed as trade refuse during 1902 Cases of ice cream poisoning occurred during the summer and in certain ice creams subsequently submitted to him Dr Klein discovered organisms which were highly pathogenic to guinea pigs There can be no doubt that much good is likely to accrue from the London County Council (General Powers) Act, 1902, which contains clauses as to the control of ice cream manufacture It is largely the conditions under which the materials are stored between boiling and freezing which are responsible for contamination of ices, an inference which is drawn from the fact that most of the pathogenic organisms discovered are non-sporing organisms and as such were likely to be destroyed by the boiling process Under the regulations now drawn up by the City corporation it is provided that freezing must take place immediately after boiling Dr Collingridge's interesting report also contains an account of the action taken by the corporation with regard to contaminated shell fish—a matter which has recently been the subject of discussion in these columns

The City of Birmingham —Dr Alfred Hill has now made 30 annual reports upon the health of the population of Birmingham, and in this his thirtieth and, we believe we are right in saying, farewell report he has the great satisfaction of being able to announce the fact that the death rate for 1902 was the lowest ever recorded for the city Not only has Dr Hill served Birmingham long and faithfully as medical officer of health, but he has also an unbroken record of 41 years' service for the city in the capacity of public analyst The population of Birmingham at the middle of 1902 was estimated at 528,181 and the following record of the inroads of death for the three years 1900–02 among the several age groups is sufficiently interesting to merit reproduction —

Under 1 year	222 7 per 1000
Between 1 and 5 years	27 5 ,,
,, 5 ,, 10	3 9 ,,
,, 10 ,, 15	2 1 ,,
,, 15 ,, 25	3 7 ,,
,, 25 ,, 45	9 2 ,,
,, 45 ,, 65	28 1 ,,
Over 65	93·4 ,,

As Dr Hill observes, the most important feature in this table is the toll exacted by death from the infant population of the city Scarlet fever was quite remarkably prevalent during 1902, no fewer than 5044 cases having been notified, a number which gave an attack rate of 9 39 per 1000 of the population The fatality rate for the year was 5 8 per cent The incidence of the disease varied materially in different wards of the city—i e, from 14 1 to 4 0 per 10 000 Dr Hill states that these figures send to show that scarlet fever is as much a disease of the healthy as of the unhealthy wards—i e, it bears no relation to what are generally regarded as insanitary conditions A large number of the cases notified were isolated in hospital, as many as 4534 cases having been thus dealt with. As regards pulmonary tuberculosis the death rates in the different wards ranged from 27 8 to 9 per 10,000, facts from which with those of previous years Dr Hill infers that "consumption is principally a disease of the less sanitary portions of the city where both the hygenic and social conditions are of inferior character" Dr Hill devotes considerable space to the housing question, and as to this he remarks "The most trying need of Birmingham at the present moment is better house accommodation for the labouring classes" He adds that houses of three or four rooms are being continually removed to make way for business premises, and as no additional houses of this type are erected there is a great difficulty in dealing with the housing question. He advises the city council to erect such accommodation under Part 3 of the Housing of the Working Classes Act. Dr. Hill thinks that consumption and certain other preventable diseases will never be stamped out until new healthy houses have been provided.

Salford County Borough.—Mr. Charles H. Tattersall reports that an outbreak of typhus fever occurred in Salford during 1902. There were altogether 49 cases and of these 15 died. The outbreak appears to have been set going, as usual, through the agency of unrecognised cases and it is not unlikely that the disease may have been introduced from Liverpool. It was only by means of a house-to-house inspection that the course of the disease was checked and the sanitary inspectors were instrumental in bringing to light several unrecognised cases. A teacher in one of the schools was attacked and as she lived in a house with other teachers employed in other schools it was deemed desirable to close all the schools with which such teachers were connected. Generally it was found that those attacked were living under overcrowded, dirty, and poverty-stricken conditions, but nine of the cases appear to have belonged to a class in which those conditions did not obtain. Three of these nine were employés of the corporation—i.e., a vanman, a nurse, and a wardmaid. Under the powers conferred upon Salford by its Improvement Act of 1899 24 samples of milk supplied to Salford were sent to Professor S. Delépine for bacteriological examination and 20·8 per cent. of such samples were found to cause tuberculosis. The farms from which these samples came were visited and the cows were examined. Of the five cows which had yielded the tuberculous milk two had already been slaughtered and milk from five additional cows with suspicious-looking udders was taken for examination. Four of these samples caused tuberculosis.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8257 births and 4139 deaths were registered during the week ending August 8th. The annual rate of mortality in these towns, which had been 13·5, 13·4, and 14·4 per 1000 in the three preceding weeks, declined to 14·3 last week. In London the death-rate was 13·0 per 1000, while it averaged 14·9 in the 75 other large towns. The lowest death-rates in these towns were 5·1 in Burton-on-Trent, 5·3 in Hornsey, 5·7 in Coventry, 6·2 in Southwark, 6 8 in Leyton, 7·1 in Barrow-in-Furness, 7·4 in Bournemouth, and 7 6 in Swansea; the highest rates were 21·0 in Wigan, 21·5 in Burnley, 22·7 in Ipswich, 23·8 in Grimsby, 24·3 in Sheffield, 24·8 in Birkenhead, and 26·6 in Bootle. The 4139 deaths in these towns last week included 717 which were referred to the principal infectious diseases, against 473, 532, and 591 in the three preceding weeks; of these 717 deaths 480 resulted from diarrhœa, 61 from whooping-cough, 57 from measles, 44 from diphtheria, 38 from scarlet fever, 29 from "fever" (principally enteric), and eight from small-pox. No death from any of these diseases was recorded in Hornsey, Hastings, Bournemouth, Devonport, Burton-on-Trent, Handsworth, Smethwick, Huddersfield, or Stockton-on-Tees; the highest death-rates from these principal infectious diseases were recorded in Walsall, Grimsby, Birkenhead, Bootle, Wigan, Warrington, Sheffield, and Newport (Mon.). The greatest proportional mortality from measles occurred in Ipswich, Stockport, and Sheffield; from diphtheria in Nottingham and Wallasey; from whooping-cough in Reading, Rochdale, Sheffield, and Newport (Mon.); from "fever" in Grimsby; and from diarrhœa in Grimsby, Birkenhead, Bootle, St. Helens, Warrington, Sheffield, and Rotherham. The mortality from scarlet fever showed no marked excess in any of the large towns. Small-pox caused one death in Birmingham, one in Liverpool, one in Manchester, two deaths in Halifax, one death in Leeds, and two deaths in Newcastle-on-Tyne, but not one in any other of the 76 large towns. The Metropolitan Asylums hospitals contained 48 small-pox patients on Saturday last, August 8th, against 71, 71, and 66 on the three preceding Saturdays; four new cases were admitted during last week, against seven, 12, and nine in the three preceding weeks. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital, which had been 1710, 1711, and 1726 at the end of the three preceding weeks, had further increased to 1771 at the end of last week; 216 new cases were admitted during the week, against 243, 229, and 237 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 115, 132, and 110 in the three preceding weeks, fell again last week to 107, and were 28 below the number in the corresponding period of last year. The causes of 39, or 0·9 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Salford, Bradford, Hull, Newcastle-on-Tyne, and in 48 other smaller towns; the largest proportions of uncertified deaths were registered in Northampton, Liverpool, and Bury.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·2, 15·4, and 14·7 per 1000 in the three preceding weeks, fell again to 14·6 per 1000 during the week ending August 8th and was 0 3 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 11·3 in Paisley and 11·6 in Aberdeen to 19·0 in Leith and 20·3 in Greenock. The 478 deaths in these towns included 34 which were referred to diarrhœa, six to "fever," six to scarlet fever, five to whooping-cough, five to measles, and four to diphtheria. No death occurred from small-pox during the week. In all, 60 deaths resulted from these principal infectious diseases last week, against 57, 62, and 63 in the three preceding weeks. These 60 deaths were equal to an annual rate of 1·8 per 1000, which was 0·1 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 22, 34, and 28 in the three preceding weeks, were again 28 last week, of which 21 occurred in Glasgow, four in Dundee, and three each in Edinburgh, Leith, and Greenock. The deaths referred to different forms of "fever," which had been three, six, and five in the three preceding weeks, rose again to six last week and included five in Glasgow. Four of the five fatal cases of measles, and four of the five fatal cases of whooping-cough occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 73, 79, and 69 in the three preceding weeks, fell last week to 54, and were nine below the number in the corresponding period of last year. The causes of three, or 0·6 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 16·0, 17·5, and 18·3 in the three preceding weeks, was 18·2 per 1000 during the week ending August 8th. During the past four weeks the death-rate has averaged 17 5 per 1000, the rates during the same period being 13·1 in London and 14 3 in Edinburgh. The 132 deaths of persons belonging to Dublin registered during the week under notice were one less than in the preceding week and included eight which were referred to the principal infectious diseases, against six, nine, and five in the three preceding weeks; of these, five resulted from diarrhœa and one each from small-pox, measles, and whooping-cough, but not one from scarlet fever, diphtheria, or "fever." These eight deaths were equal to an annual rate of 1·1 per 1000, the death-rates from the principal infectious diseases last week being 1·7 in London and 1·3 in Edinburgh. The fatal cases of diarrhœa, which had been one, one, and four in the three preceding weeks, increased to five last week. The 132 deaths in Dublin last week included 32 of children under one year of age and 30 of persons aged 60 years and upwards; the deaths of infants showed a decline of eight, and those of elderly persons an excess of 10, as compared with the respective numbers recorded in the preceding week. Six inquest cases and five deaths from violence were registered and 49, or more than a third, of the deaths occurred in public institutions. The causes of seven, or more than 5 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JULY, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1903.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes	Death rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small pox.	Measles	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living			
LONDON...	4,613,812	55	1092	654	—	141	1	17	318	—	2278	6·4	—	112	34	48	85	—	22	—	209	10	1·4	4424	12·5	103
West Districts.																										
Paddington	146,032	—	63	11	—	—	—	—	5	—	79	7·1	—	2	—	—	2	—	—	—	4	8	0·7	121	10·8	93
Kensington	178,409	—	46	17	—	2	—	—	25	—	90	6·6	—	4	2	3	3	—	—	—	6	18	1·3	171	12·5	96
Hammersmith	115,803	1	20	6	—	2	—	—	8	—	37	4·2	—	—	—	—	—	—	—	—	9	9	1·0	103	11·6	95
Fulham	147,780	—	38	18	—	7	—	—	9	—	72	6·4	—	4	—	—	2	—	2	—	14	22	1·9	144	12·7	103
Chelsea	74,169	—	9	9	—	1	—	—	1	—	20	3·5	—	1	—	—	2	—	—	—	2	5	0·9	66	11·6	117
City of Westminster	179,052	20	25	21	—	6	—	—	12	—	84	6·1	—	7	1	2	2	—	—	—	7	19	1·4	163	11·9	126
North Districts.																										
St. Marylebone	131 234	—	31	14	—	6	—	—	10	—	61	6·1	—	—	2	1	3	—	1	—	3	10	1·0	117	11·6	89
Hampstead	85,197	—	25	6	—	1	—	—	2	—	34	5·2	—	—	—	1	1	—	—	—	—	2	0·3	47	7·2	53
St. Pancras	235,716	10	51	42	—	5	—	—	13	—	121	6·7	—	13	3	—	4	—	—	—	5	25	1·4	231	12·8	116
Islington	339 137	3	96	36	—	9	—	2	17	—	163	6·3	—	11	3	2	6	—	3	—	6	31	1·2	285	11·0	84
Stoke Newington	52,069	—	5	3	—	—	—	1	1	—	10	2·5	—	—	—	—	—	—	—	—	4	4	1·0	28	7·0	91
Hackney	224,082	—	52	49	—	24	—	2	27	—	154	9·0	—	6	1	1	6	—	3	—	10	27	1·6	180	10·5	86
Central Districts.																										
Holborn	57,845	1	20	4	—	—	—	—	5	—	30	6·8	—	—	—	—	—	—	—	—	4	4	0·9	54	12·2	75
Finsbury	99,717	—	35	8	—	4	—	2	3	—	52	6·8	—	13	1	1	3	—	1	—	1	20	2·6	140	18·3	116
City of London	24,539	—	3	7	—	2	—	1	1	—	14	7·4	—	—	—	1	—	—	1	—	—	2	1·1	23	12·2	83
East Districts.																										
Shoreditch	117,513	—	21	14	—	5	—	1	10	—	51	5·7	—	6	—	1	3	—	—	—	23	33	3·7	170	18·9	197
Bethnal Green	130 028	—	45	11	—	5	—	—	18	—	79	7·9	—	8	1	—	6	—	—	—	11	26	2·6	167	16·7	126
Stepney	302,153	—	66	33	—	10	—	—	24	—	133	5·7	—	8	3	4	9	—	—	—	21	45	1·9	365	15·7	128
Poplar	169,550	—	54	38	—	7	—	—	14	—	113	8·7	—	2	1	7	—	—	2	—	8	20	1·5	186	14·3	84
South Districts.																										
Southwark	207,369	1	28	25	—	2	—	2	15	—	73	4·6	—	2	2	1	2	—	1	—	14	22	1·4	231	14·5	115
Bermondsey	129,801	—	28	31	—	4	—	1	18	—	82	8·2	—	4	2	4	3	—	1	—	14	28	2·8	161	16·2	171
Lambeth	307,711	5	60	32	—	12	—	—	18	—	127	5·4	—	4	1	3	4	—	1	—	14	27	1·1	299	12·7	98
Battersea	173,422	1	27	27	—	9	—	1	9	—	74	5·6	—	8	—	2	6	—	1	—	4	21	1·6	152	11·4	78
Wandsworth	249,678	7	63	42	—	3	1	—	10	—	126	6·6	—	3	1	6	5	—	1	—	4	20	1·0	180	9·4	62
Camberwell	265,562	5	53	32	—	3	—	—	12	—	105	5·2	—	2	3	3	5	—	2	—	8	23	1·1	218	10·7	93
Deptford	112,537	—	55	61	—	1	—	—	11	—	128	14·8	—	4	2	2	2	—	—	—	8	18	2·1	123	14·2	127
Greenwich	99,824	1	10	18	—	4	—	1	7	—	41	5·4	—	—	2	1	4	—	—	—	2	9	1·2	83	11·5	89
Lewisham	136,405	—	24	30	—	4	—	1	8	—	67	6·4	—	—	2	1	—	—	1	—	1	5	0·5	97	9·3	52
Woolwich...	121,478	—	39	9	—	1	—	2	5	—	56	6·0	—	—	1	1	2	—	1	—	2	7	0·8	114	12·2	60
Port of London	—	—	—	—	—	2	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·4 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In each of the two preceding months the rate had been 6·0 per 1000. The rates were considerably below the average in Hammersmith, Chelsea, Hampstead, Stoke Newington, Southwark, and Camberwell, while they showed the largest excess in Hackney, the City of London, Bethnal Green, Poplar, Bermondsey, and Deptford. The prevalence of small-pox during July showed but little variation from that recorded in the preceding month; of the 55 cases notified last month, 20 belonged to the City of Westminster, ten to St. Pancras, seven to Wandsworth, five to Lambeth, five to Camberwell, and three to Islington. The Metropolitan Asylums hospitals contained 66 small-pox patients at the end of last month, against 47, 60, and 57 at the end of the three preceding months; the weekly admissions averaged 15, against 12, 13, and 12 in the three preceding months. Scarlet fever was slightly more prevalent last month than it had been during June; among the various metropolitan boroughs the greatest proportional prevalence of this disease occurred in Paddington, Holborn, Finsbury, Bethnal Green, Poplar, Deptford, and Woolwich. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1685, 1738, and 1614 at the end of the three preceding months, had risen again to 1697 at the end of last month; the weekly admissions averaged 236, against 201, 226, and 195 in the three preceding months. The prevalence of diphtheria was considerably in excess of that recorded in the preceding month; this disease was proportionally most prevalent in Hackney, the City of London, Poplar, Bermondsey, Deptford, and Lewisham. There were 840 cases of diphtheria under treatment in the Metropolitan Asylums hospitals at the end of last month, against 760, 808, and 781 at the end of the three preceding months; the weekly admissions averaged 130, against 105, 120, and 119 in the three preceding months. The prevalence of enteric fever showed a further increase upon that recorded in recent months; the greatest proportional prevalence of this disease occurred in Fulham, Hackney, the City of London, Shoreditch, Poplar, and Battersea. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 53, 51, and 88 at the end of the three preceding months, had further risen to 119 at the end of last month; the weekly admissions averaged 18, against five, ten, and 17 in the three preceding months. Erysipelas was proportionally most prevalent in Kensington, Hackney, Holborn, Shoreditch, Bethnal Green, Poplar, Bermondsey, and Deptford. The 17 cases of puerperal fever notified during the month included two each in Islington, Hackney, Finsbury, Southwark, and Woolwich.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the various boroughs in which the deceased persons had previously resided. During the four weeks ending August 1st the deaths of 4424 persons belonging to London were registered; these deaths were equal to an annual rate of 12·5 per 1000, against 15·8, 14·2, and 12·9 per 1000 respectively in the three preceding months. The lowest death-rates in London last month were 7·0 in Stoke Newington, 7·2 in Hampstead, 9·3 in Lewisham, 9·4 in Wandsworth, 10·5 in Hackney, 10·7 in Camberwell, and 10·8 in Paddington; the highest death-rates were 14·5 in Southwark, 15·7 in Stepney, 16·2 in Bermondsey, 16·7 in Bethnal Green, 18·3 in Finsbury, and 18·9 in Shoreditch. The 4424 deaths from all causes included 510 which were referred to the principal infectious diseases; of these, 112 resulted from measles, 34 from scarlet fever, 48 from diphtheria, 85 from whooping-cough, 22 from enteric fever, and 209 from diarrhœa, but not one from small-pox, from typhus fever, or from any ill-defined form of continued fever. The lowest death-rates last month from these infectious diseases were recorded in Paddington, Chelsea, Hampstead, Holborn, Lewisham, and Woolwich; and the highest rates in Fulham, Finsbury, Shoreditch, Bethnal Green, Stepney, Bermondsey, and Deptford. The 112 deaths from measles were 88 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in the City of Westminster, St. Pancras, Finsbury, Shoreditch, Bethnal Green, and Battersea. The 34 fatal cases of scarlet fever showed a decline of 29 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in St. Marylebone, Bermondsey, Deptford, Greenwich, and Lewisham. The 48 deaths from diphtheria were less than one-third of the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Kensington, Poplar, Bermondsey, Wandsworth, and Deptford. The 85 fatal cases of whooping-cough showed a decline of 73 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Hackney, Finsbury, Bethnal Green, Stepney, Battersea, and Greenwich. The 22 deaths referred to "fever" were 15 below the corrected average number; of these 22 deaths, three belonged to Islington, three to Hackney, two to Fulham, two to Poplar, and two to Camberwell. The 209 fatal cases of diarrhœa were over 500 fewer than the average; among the various metropolitan boroughs the highest death-rates from diarrhœa were recorded in Hammersmith, Fulham, Shoreditch, Bethnal Green, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 61 per cent. below the average.

Infant mortality in London during July, measured by the proportion of deaths among children under one year of age to registered births, was equal to 103 per 1000. The lowest rates of infant mortality were recorded in Hampstead, Holborn, Battersea, Wandsworth, Lewisham, and Woolwich, and the highest rates in the City of Westminster, Shoreditch, Bethnal Green, Stepney, Bermondsey, and Deptford.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE temporary rank of Captain in the Army granted to temporary Lieutenant M. Taylor is dated July 2nd, 1902.

Captain C. T. Samman joins at Woolwich for temporary duty. Captain H. V. Prynne is ordered to join at Woolwich for duty. Captain F. J. C. Heffernan proceeds to London for a course of study at the Royal Army Medical College. Lieutenant-Colonel H. J. McLaughlin, D.S.O., retired pay, has arrived at York for duty as Recruiting Medical Officer at Bradford.

IMPERIAL YEOMANRY.

Scottish Horse: William Stewart Gray Kidd, late Surgeon-Captain, 1st Scottish Horse, to be Captain. Dated March 30th, 1903. Surgeon-Captain John Anderson, from 5th (Perthshire Highland) Volunteer Battalion the Black Watch (Royal Highlanders), to be Lieutenant. Dated March 30th, 1903. James Anderson Taylor to be Surgeon-Lieutenant. Dated March 30th, 1903.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Northumberland: Surgeon-Lieutenant R. A. Nesham to be Surgeon-Captain. Dated August 8th, 1903.

Rifle: 1st Volunteer Battalion the King's Own (Royal Lancaster Regiment): Surgeon-Lieutenant R. J. Morris to be Surgeon-Captain. Dated August 8th, 1903. 4th Volunteer Battalion the King's (Liverpool Regiment): Surgeon-Lieutenant R. Fielding-Ould to be Surgeon-Captain. Dated August 8th, 1903. 1st Volunteer Battalion the Dorsetshire Regiment: Surgeon-Captain W. G. Brett resigns his commission. Dated August 8th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Glasgow Companies: The undermentioned Captains to be Majors: J. McGregor Robertson (dated August 8th, 1903) and A. Moyes (dated August 8th, 1903).

VOLUNTEER OFFICERS' DECORATION.

The King has conferred the Volunteer Officers' Decoration upon the undermentioned officers of the Volunteer Force:—*North-Eastern District: Artillery:* 1st Newcastle-upon-Tyne Royal Garrison Artillery (Volunteers): Surgeon-Lieutenant-Colonel Arthur Taylor Wear. *Rifle:* 2nd Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): Surgeon-Major William Sandham Symes and Surgeon-Captain William Moxon. 1st (Hallamshire) Volunteer Battalion the York and Lancaster Regiment: Surgeon-Lieutenant-Colonel John Wise Martin. *North-Western*

District Rifle 2nd Volunteer Battalion the Lancashire Fusiliers Surgeon Major William Pooley

THE ROYAL ARMY MEDICAL CORPS EXAMINATION

The entry for the Royal Army Medical Corps at the late examination has been a singularly good one, 72 men having applied in the first instance to compete for 30 vacancies, as has already been announced in THE LANCET Among the competitors were many men who had distinguished themselves at their respective medical schools, Guy s Hospital bearing off the palm with five men out of the first ten of the successful candidates The names are as follows —A O H Gray, M B Lond , D P Watson, M A , M B , D P H Cantab , I S Dudding, C H Robertson, M B Lond , F M M Ommaney, J S Powell, R H MacNicol, M B , B Ch Dub , O Levers M B Lond , D D Paton M B B Ch Edin , S L Pallant, O R Bradley, H H J Fawcett, B A Cantab , T J Wright, G A Kempthorne B A Cantab , J S MacEntire M A., M B , B Ch Dub , S E Lewis M B , B Ch Glasg , N D E Harvey, M B R.U I , J A Longley, M B , B Ch Vict , N S Dunkerton, P J Hanafin, D P H Irel , A O Osburn , M O Wetherell, M B , B S Durh , R T Collins , W MacD MacDowall, F J Turner, H O Hildreth F R.C S Edin , G S Mackay, M B B Ch Edin , J D Richmond, M B , B Ch Glasg , F M G Tulloch , and E M Glanvill, M B , B Ch Edin It is to be hoped that this service is at last attracting the attention it deserves and that the prospects of professional advancement which it now offers may prove a continued attraction to a thoroughly good class of young medical men in the future as in the present instance

INDIAN MEDICAL SERVICE EXAMINATION

The following is a list of the candidates for His Majesty s *Indian Medical Service who were successful at the competitive* examination held in London on August 3rd 1903 and following days Forty one candidates, of whom 23 had University degrees, competed for 16 appointments , 29 were reported qualified —

Name	Marks *	Name	Marks *
R Kelsall	3729	E T Harris	3159
J H Burgess	3646	C J Brierley	3118
C H Brodribb	3599	R F Steel	3097
J M C A Macmillan	3448	G W Maconachie	3064
C A Gill	3361	J B D Hunter	3061
W E J Tuohy	3231	A C Ingram	3046
G F J Harkness	3253	A W M Harvey	3031
F T Owens	3242	L W C Bradfield	3024

* Marks gained out of a possible total of 5100

THE ROYAL NAVAL HOSPITAL, STONEHOUSE

Sir Henry F Norbury, K C B , Director General of the Royal Naval Medical Department paid his annual visit of inspection to the Royal Naval Hospital, Stonehouse, on August 4th 5th, and 6th He was accompanied by three members of the medical board and was received at the hospital by Inspector General T Bolster R N The party were also accompanied by Deputy Inspector General T D Gimlette R.N , and Deputy Inspector General R Bentham R N Sir Henry Norbury concluded his visit by the inspection of the sick quarters of the Royal Naval Barracks Devonport, and the Royal Marine Infirmary, Stonehouse and subsequently held a levée of the medical officers connected with the hospital

Correspondence.

"Audi alteram partem."

THE TREATMENT OF GOITRE BY DISTILLED OR RAIN WATER

To the Editors of THE LANCET

SIRS,—In the paper of which I made mention in my last letter I have collected nearly all the known facts about the production of goitre and a short *resume* may be useful in connexion with Dr C A Rayne s letter in THE LANCET of August 8th, p 424 The goitrous poison is born of the soil and the soil only It is absent from rain water Pliny says "Tales sunt aquæ quales terræ per quas fluunt. St Lager relates that the youths of a certain town hip in France in order to escape military service drank copiously for several months before the arrival of the recruiting authorities from a well the waters of which were notoriously goitrigenous Their thyroid glands rapidly enlarged and by this means they escaped service Lombroso relates a similar instance occurring in Lombardy where the formation of goitre was even more rapid "La fonte del gozzo ove sogliono andare i giovani all' epoca della coscrizione onde acquistare *in quindici giorni* quel difetto che li sottrae dal servizio '

The hardness or otherwise of a water has nothing to do with its goitre producing faculties Some of the softest waters are the most goitrigenous One poisonous water I am acquainted with contains only 0 5 of a grain per gallon of calcium carbonate No calcium or magnesium salts in water cause goitre nor does the absence of chloride of sodium (a reputed cure) The two theories most in vogue at present are (1) the bacillary theory of the Italian physicians Lustig and Carle and (2) what I may call the metallic salts theory advocated by St Lager in his two series of ' Études sur les Causes du Crétinisme et du Goitre Endémique ' and the salts which he chiefly makes reference to are the sulphides of iron and copper (iron and copper pyrites) I have not time to go into the *pros* and *cons* of these two theories I shall content myself with saying that the iron theory has much to be said in its favour The flushing action of an iron containing water on a loosely connected gland like the thyroid must be considerable I have found evidence of iron in many goitrigenous waters, but not invariably, nor is it likely to be present in every sample of water examined In proof of this iron theory it is a curious fact that in very numerous instances the water coming in contact with pyritous marls is highly goitrigenous In England the blue marls of the Gault and Wealden undoubtedly produce goitrigenous water In France the marls corresponding to the above the ' marnes aptiennes ' and the "marnes neocomiennes inférieures, are equally dangerous Both these formations in France contain a superabundance of iron bisulphide and the blue colour of the English marls is of course due to disseminated iron pyrites. Goitre is found sometimes on the chalk and chalk marl in England We know that calcium carbonate does not produce goitre What then is the cause of the disease in this case? So far as I am aware the only accidental minerals found in these formations are disseminated lime phosphate glauconite (a hydrous silicate of iron and magnesia) and curiously enough marcasite which is a very readily decomposable form of iron bisulphide I could quote numerous instances of the same kind in support of this theory It may be that some subtle combination of organic matter with the decomposing sulphides may be the true cause of goitre but much work remains still to be done on this question Dr Rayne will find a mine of information on endemic goitre in the works of St Lager which, I think, are among the ablest ever penned by a physician Herein, too, are related many instances of goitres cured by the imbibition of rain water, showing that Dr Rayne s idea that this was a new method of treatment is not founded on fact, as it has happened in numerous instances in the history of medicine and is now a matter of fairly ancient knowledge. Apologising for the length of this letter,

I am, Sirs, yours faithfully,

LOUIS E STEVENSON M B B C Cantab , F G S

Temple Sowerby Penrith August 9th 1903

MEDICAL DOCTRINES OF HEREDITY

To the Editors of THE LANCET

SIRS,—It is interesting and instructive to find the traditional conflict between the advocates of vitalism and naturalism making its periodical appearance , interesting also perhaps to see the vitalist school relinquish none of its ancient ardour or infallibility, and certainly interesting, in particular to discover no allusion to Professor Weismann by those who so strenuously support his views. This omission on the part of Dr G Archdall Reid and Dr C R Niven is unkind to say the least of it I confess that I cannot quite understand however, why this discussion has been reopened, for neither Dr Reid nor Dr Niven, in the course of reasoning which leaves the impression of being more subtle than lucid, seems to have advanced anything particularly new When I took up THE LANCET this morning and found that a correspondence was being carried on in its columns on the medical doctrines of heredity I thought that I would at least come across some reference to Professor Kassowitz's recent contributions to this subject. I was all the more justified in this expectation as the contributions in question, it would appear, are of a very striking nature. As far as I can understand from mere hearsay Professor Kassowitz denies both the struggle for existence and natural selection. He looks with suspicion on the latter theory as merely the argument for design in its modern disguise, as the latest phase of teleology, or as a substitute for providential supervision. Natural selection, indeed, may be regarded as the scientific conception of the agency by which the wicked are entirely swept away and the good are rewarded—just as Dr. Reid and Dr. Niven would have it. I may say *en passant* that my first impression on hearing of Professor Kassowitz's views was one of disconfidence ; it struck me that an attempt was being made to invalidate the authority of Darwinism in order to throw discredit on the Nietzschian adoration of strength and its praise of hero-worship. And I still would think it difficult for a Jewish writer, even on biological or sociological subjects, to refrain from indirectly protesting, like Max Nordau, against Nietzsche's treatment of the Jewish character as a factor in religious and social evolution.

But to return to my subject and Dr. Niven. This writer demands from "Dr. Wiglesworth, or any other, one indisputable instance of the transmission of an acquired trait ...... in multicellular organisms." Not long ago this challenge would have been issued without reservation of any description. Such was the case when Professor J. G. Adami pointed out how Ehrlich's side-chain theory might throw some light on question of heredity. I remember at the time referring to the remarkable experiments in the laboratory of the Naples Aquarium where it had been proved that the distinction between the germ plasm and the somatic plasm in unicellular organisms had not the absolute character claimed for it by Professor Weismann and his school. These investigations were so significant that there need be no hesitation to-day in making some concession to the dualistic prejudices shared by Dr. Niven.

I presume from Dr. Niven's position that he has not seen the note which I published about the same time in the *British Medical Journal* concerning the transmission of acquired characters in dogs. The evidence which I was able to bring forward was, I fancy I am justified in saying, of a very convincing kind. It referred to some observations made at Nice by Dr. Frémont on the consequences of his method of isolating the stomach in dogs. Dr. Frémont could not understand the objections made by Weismannism to the Darwinian theory of the transmission of acquired characters. "I have unfortunately," he remarked, "only too ample reason to feel the truth of Darwin's views. The puppies of the sheep-dogs from which I obtain my supply of gasterine already show a contracted stomach secreting a much smaller quantity of gastric juice than the parents and an enlarged intestine which bulges into the incision I make in my operation. The second generation of my '*opérés*' are useless for any purpose connected with the preparation of gasterine." I added to my note that these statements of my friend were absolutely unprejudiced, because Dr. Frémont had never looked upon the objections of the newer school of evolutionists as sufficiently cogent to attract his attention.

I am, Sirs, yours faithfully,
A. W. GILCHRIST, M.D. Paris.

La Bourboule, July 27th, 1903

To the Editors of THE LANCET.

SIRS,—I am exceedingly sorry that I was unable to reply to Dr. Wiglesworth's letter in THE LANCET of August 1st. As I was out of Great Britain I was not even aware that my own letter had appeared in your columns, nor did I see Dr. Wiglesworth's reply till my return home.

In the beginning, however, let me disclaim any desire or intention of trying to take care of Dr. Reid. No one who has carefully tried to master the teaching of "The Present Evolution of Man" would ever dream of trying to shield Dr. Reid from the attacks of anyone, either inside or outside our profession. As Dr. Wiglesworth correctly observes, Dr. Reid is well able, and I would go farther and say more than able, to take care of himself, and that especially so from anyone who advances arguments like those of Dr. Wiglesworth.

Dr. Wiglesworth contends that I have misconstrued his position. Very well. Put as simply as possible Dr. Wiglesworth believes, and claims that he has proved by his statistics, that parental drinking leads to increased desire for alcohol as well as to increased mental instability in the offspring. That I, as well as those belonging to the newer Darwinian school, deny. Surely that is plain and admits of no misconstruction. It is not denied that the offspring developed from germ cells may be influenced in this or that possible or probable direction by injurious agents—for example, alcohol—circulating in the parents' blood. What is denied is that the changes produced in the offspring are the same as those produced in the parent "except as a coincidence so rare that it may be neglected as a factor in evolution." For example, suppose a man acquires a taste for tomatoes, it is not denied that the eating of tomatoes may influence his germ cells in some possible or probable direction, but it is denied that the offspring arising from these germ cells will have a greater desire for tomatoes than otherwise would have been the case. But more, suppose a man contracts scarlet fever, for instance, and recovers, that is acquires immunity against it, it is not denied that his germ cells are uninfluenced by the toxin circulating in his blood. What is denied, supposing he afterwards becomes a father, is that the child or children developed from these germ cells will have a greater natural resistance to scarlet fever than otherwise would have been the case. The evolution of our race with regard to this special disease has proceeded and is proceeding along lines of an inborn capacity for acquiring immunity against it. Some take the disease severely and die ; others take it slightly and recover ; while others seem to be totally immune. Those who have not varied favourably tend to be eliminated, leaving the continuance of the race to those who have so varied, that is, who have an inborn immunity or an inborn power of acquiring immunity against the disease. The same is to be said with regard to every other infectious disease With regard to alcohol or any other poison the same reasoning is to be employed. Suppose a man becomes addicted to alcohol it is not denied that his germs may be influenced in some possible direction. What is denied is that the offspring derived from these germs will have a greater desire for alcohol than they otherwise would have had. If this were so then they would make a different start in life from the parent, because to the child's inborn capacity to enjoy alcohol would have to be added the increase of capacity due to the parents' drinking, and this increased capacity accumulating generation after generation would at last lead to such drunkenness as to result in the extermination of the race. However it has come about, there has arisen in man during his evolution a desire for, or capacity to enjoy, alcohol. The very earliest records tell of man's drinking. There is no nation now sober which was not at one time very drunken. Nor is there one race which never had any acquaintance with alcohol till recent times that is not now drunken. If parental drinking led to increased filial drinking or filial insanity, and as these would increase generation after generation, we would expect that those races which have had the most prolonged acquaintance with alcohol would be the most drunken and would have a bigger death-rate from alcohol than those that have not had this prolonged acquaintance with it. The exact opposite, however, is the case. Did parental drinking lead to filial insanity the same result would ensue—that is, extermination of the race. In the case of alcohol, as in that of scarlet fever, natural selection has been at work eliminating the unfit and leaving the continuance of the race to those who have varied favourably—that is, in the inborn power of tolerating alcohol, or avoiding it, or both. Now it must be insisted upon, in spite of the iteration and reiteration of Dr. Wiglesworth, that no one has said "that the germ plasm is incapable of receiving permanent injury by the agency of poisons circulating in the blood—that is, of course, that the damage to the individual germ cells is never of such a nature as to lead to permanent alteration in the organism which results therefrom."

Dr. Wiglesworth is quite right when he goes on to say, "Either a modification can be produced in the somatic cells of a child as a result of such influence or it cannot. If as a result of the development of germ cells in a vitiated nutrient medium the child resulting therefrom is modified in any direction, however slight, then a definite germinal variation has been produced by the agency of the poison in question." But possibly and probably Dr. Wiglesworth is altogether wrong when he goes on to say further that if the neo-Darwinism contention is correct it may be a "matter of indifference as regards the welfare of such offspring whether the germ cells from which they arise are developed in a vitiated nutrient medium or the reverse" We at present know too little about heredity to say it is or is not a matter of indifference whether the germ cells are developed in a vitiated nutrient medium or not. *However, with regard to permanent alterations* being produced in germ cells and the resulting offspring from poisons, &c, circulating in the blood, this is probably correct For since the child varies somewhat from the parent the germ cell from which he is derived must also have varied somewhat from the germ cell from which the parent was derived and it seems probable (neglecting the effects of conjugation) that this could only have arisen from some external cause—for example, alcohol circulating in the blood What is denied is that such changes in the blood usually produce changes of such a kind in the germ cell as result in variations in the offspring derived from these germ cells similar to those produced in the parent organism. For example, suppose a bicyclist develops his calf muscles to a great extent this modification may so alter the blood or nutrient parts of it as to cause an alteration in the germ cell which will, therefore, cause it to develop into an organism different from that which would otherwise have been the case It is, however, difficult to conceive that this variation in the offspring will be of the same kind as that in the parent In other words, it is difficult to believe that because the parent developed his calf muscles the child will have better calf muscles than he otherwise would have had If this ever does happen—that is, if ever an acquired trait is transmitted—it must be so rare that no indisputable instance of it has yet been recorded and thus as a factor in evolution may be neglected

I pointed out in my last letter that the accumulation and transmission of acquired traits is probably the normal condition of things in low unicellular organisms, as witness the conversion of small-pox into vaccinia by passing the virus through the cow, but that such obtains in multicellular organisms, notwithstanding Dr Wiglesworth's statistics, there has not yet been any evidence advanced worth the time spent in its examination

I am more than sorry if I have misread any part of Dr Wiglesworth s first letter In that letter he evidently insists that the actions of poisons, &c, on the germs (apart from conjugation) will cause the offspring developed from these germs to vary in certain *definite* directions To that end his statistics are supposed to prove that parental drinking will cause filial intemperance or filial mental instability The foregoing part of this letter and my last letter prove that for this contention there is not one iota of justification Were this so then we would expect every member of a litter of pups or kittens to resemble exactly one another, for the germs have been subjected to the same conditions of environment We know, however, that no two members of the same litter correspond in any one character or trait.

Dr Wiglesworth next refers to the 'Mohammedan races which show us millions of human beings who are perfectly sober not by virtue of such an evolution but in consequence of the operation of religious sanctions" Granted But though the past history of these races is well known the future has yet to be written It must also be remembered that this craving for alcohol is not the only desire of man that has been counteracted by his religious systems Millions and millions of men and women have denied themselves *the perfectly natural gratification of sexual love* because of their religious systems, and though their sexual instinct was counteracted it was never abolished Similarly, though the desire for alcohol has been counteracted it never has been abolished Let those races change their religion (they have done it before and may do so again) to one like the Christian religion which does not demand total abstinence, and it may be the last state of those races will be worse than the first. Again if these races are Mohammedans and abstainers we must take into consideration the price they are paying in knowledge, belief art, morals, law, customs, &c.—that is, in culture or civilisation

I need not follow Dr. Wiglesworth further, for any other question he raises has been answered in the preceding part of this letter or in my previous one In his last sentence, however, he asks, "Can Dr Reid or Dr Niven furnish evidence to show that on the average the children of alcoholic parentage are as stable and healthy as those of parents not so circumstanced? I respectfully decline to do any such a thing Dr Wiglesworth has asserted that parental drinking causes filial intemperance and filial insanity These statements have, I trust, been shown to be wrong It is for Dr Wiglesworth to prove *his* statements It is no part of my business to prove an exact opposite I may say, however, that it would be perfectly easy to give the proof he asks, but the disproof of his assertions is the beginning and end of my task.

I am, Sirs, yours faithfully,

Liverpool August 7th 1902. C R. NIVEN

A MINISTRY OF HEALTH

To the Editors of THE LANCET

SIRS,—In reference to a paper which I had the honour of reading in the Section of State Medicine of the seventy first meeting of the British Medical Association on July 31st at Swansea on the formation of a Health Ministry I am invited to reply to the following points raised by distinguished members of our profession —

1 That friction would be caused between the proposed Minister and the Local Government Office and a deadlock in public health affairs ensue
2 That local administration of sanitary matters would become detached from other departments of local government
3 That the first step towards a proper State sanitary service would be the improvement in status and pay of the medical department of the Local Government Board

I think that the first two points may be answered together, A Minister of Education has recently been appointed, with obvious advantage, at a time, curiously enough, when local educational and general government has been in process of unification Thus it is clear that the Ministry of Education can coöperate harmoniously with the Local Government Office though local administration of duties is combined In Belgium and Canada, in the United States of America, in Germany in Sweden, and in Denmark the State public health administration is incorporated in departments of agriculture navy, police, and education, a "medical council," and the Ministry of Justice respectively [1] The national administration of public health services is, therefore, not confined to central offices of local government in other countries These facts strengthen the supposition, to my mind, that discord need not arise by a separation of the medical department of the Local Government Board to form the nucleus of a Health Ministry

As regards the third point, the improvement in status and pay and numbers of the medical department of the Local Government Board is clearly essential to the promotion of a proper State sanitary service Would this not be one of the many matters to receive the attention of the proposed Ministry of Health?

The support of the medical profession appears to be a *sine qua non* to the formation of such a central medical department and it is hoped that these questions when raised will receive their close attention

I am Sirs, yours faithfully,

Plymouth August 8th, 1903. F G BUSHNELL

TRIFID STOMACH

To the Editors of THE LANCET

SIRS,—In THE LANCET of August 8th, p 415, appeared an annotation on hour glass stomach in which, referring to an interesting case of trilocular stomach reported in the same issue (p 388) you state "It is, we believe, the first case of trifid stomach on which an operation has been performed" May I draw your attention to a paper which I read before the American Surgical Society on May 8th, 1901 and published in THE LANCET of May 25th, 1901, p 1458 Here I described a case (Case 22) of trifid stomach under the name of double hour glass contraction of the stomach on which I performed gastroplasty and gastrolysis and cured the patient who remains well This case preceded the one you describe as the first by more than four years and although one of the strictures was produced by adhesions and the other by cicatricial contraction the stomach was divided into three distinct cavities The case is referred to and briefly described in the work "Diseases of

---

[1] See also the Case for a Ministry of Health p 160 et seq by F Scott F C A citing Palmberg and Newsholme s Public Health and its Applications.

Holden, the architect appointed by the trustees after the disaster—what a pity he was not appointed before—five houses in a row belonged to the same owners, two of which did not collapse. The outside walls were nine inches and the inside walls were four and a half inches thick, "the ordinary cottage construction." In his opinion the collapse was caused by "the giving way of the chimney" between two of the houses. He did not think there was anything suggesting that blame attached to anyone. "The property, like hundreds of other houses in Manchester, was old and of a poor class." Mr. Price, the architect for the corporation, suggesting that if the property had been examined by an architect its dangerous condition might have been discovered, elicited the statement by Mr. Holden that he had never received such instructions during his more than 40 years' practice. He said also in answer to a juryman that "in property of this construction a falling chimney would be bound to bring other houses down." The city architect indorsed Mr. Holden's views and said that "the dangerous building staff" of the corporation consisted of one man. He said he thought that the corporation was responsible only when the property was dangerous to passengers in the streets. "Not to the tenant?" "No. The corporation had no right to enter a house and could only examine it from the outside." Mr. Price said that he was thinking of suggesting to the corporation the reorganisation of all the work of the building department, of which he had only had charge for 12 months. The whole of the evidence in this case suggests the idea that a great deal of the old and poor property in Manchester is in a condition dangerous to the occupants, and that in some way or other the owners or the corporation or both should exercise closer supervision. One inspector for this kind of property cannot see to the condition of the houses in all the "mean" and other streets of Manchester. The coroner thought that the jury would be warranted in finding that there was negligence in the management of the property, "culpable, if they liked, but not necessarily criminal." To constitute the latter "they must be satisfied that the accident was the direct and not a remote result of that negligence." After deliberating in private the jury found "that the children died from suffocation caused by the collapse of the buildings" and that there were criminal neglect on the part of the agent and culpable neglect on the part of the corporation inspector. This was really a verdict of manslaughter against the agent who appeared at the city police-court in the afternoon charged with manslaughter and was remanded on bail. It seems as if the individual were to suffer for the faults of the system. The above story is calculated to make property owners, and especially the owners of the squalid dwellings too common in the poor districts of our towns, and our corporate authorities more alive than they have been to their own duties and responsibilities.

The New Infirmary and Medical Education.

On July 31st the ceremony of conferring degrees of the Victoria University took place in the Whitworth Hall. All the degrees were those of Bachelor of Medicine and Bachelor of Surgery, with one exception, the conferring of the Master of Arts degree on a lady from University College, Liverpool. In the absence of Lord Spencer, the Vice-Chancellor, Dr. Alfred Hopkinson, LL.D., Principal of Owens College, opened the proceedings and in the course of his remarks spoke of the new infirmary which is so soon to be built near Owens College and of the influence which its greater proximity will exercise on medical education. He said that it was impossible not to take the opportunity of expressing the satisfaction of those interested in medical education at the prospect "of a new infirmary being very shortly erected with adequate facilities for clinical study, and that owing to these increased facilities, the proximity of the new infirmary to the College, and the hearty coöperation of the governing bodies, both lay and professional, of the two institutions there will soon be advantages offered for medical study in Manchester second to none in any part of the country." He recognised the fact that medical education, although based on broad and thorough scientific preparation, must be of a completely practical character, and that it is probably impossible to overrate the importance of the clinical side of it. He hoped that the coöperation of those engaged in imparting and increasing scientific knowledge and of those daily engaged in practice would result in further additions being made to our knowledge of medical science and art.

August 11th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Liverpool.

THE first meeting of the Council of the new University of Liverpool was held in the Senate room at University College, on August 4th, the Chancellor, the Earl of Derby, K.G., presiding. The Chancellor laid upon the table the Charter of the University and said that the occasion that had brought them together—the first meeting of the new University Council—was one of great importance. The work that lay before them would demand all the resources of their wisdom and strength, and while they must act boldly and hopefully they must at the same time act prudently and cautiously. They must resolve that they would exercise due forethought in carrying out the work which they had been appointed to undertake and must insure that everything should be done thoroughly and efficiently. They had the satisfaction of knowing that throughout the course of the University movement they had been cordially supported by the goodwill of their fellow citizens and that in parting from their colleagues in the Victoria University they had parted on the most friendly terms. For himself he fully recognised the honour that had been conferred upon him, by the nomination of his Sovereign, as the first Chancellor of the new University, and he pledged himself to the utmost of his power to help to lay the foundations of a university in which the studies of arts, science, and other subjects should receive all possible expansion, and should be so organised as to earn for the University the position of power and privilege now conferred upon it. Mr. E. K. Muspratt was appointed president and Mr. J. W. Alsop vice-president of the University Council and a committee was elected to draft ordinances and regulations as required by the statutes. It was also agreed that an inaugural ceremony should be held in St. George's Hall on some day in the autumn and a subcommittee was appointed to confer with the Lord Mayor and to arrange details of the ceremony.

Woolton Convalescent Institution.

At the twenty-ninth annual meeting of the supporters of the Woolton Convalescent Institution held in the Gladstone Hall of the institution under the presidency of the Lord Mayor, who was accompanied by the Lady Mayoress, the Lord Bishop of the diocese, Sir William Tate, Bart., and others, the secretary submitted the annual report, in which the council recorded with pleasure another satisfactory year of progress and work in the institution. The number of patients was steadily maintained, the figures for the year being 2736; the contributions received showed a further increase in annual subscriptions, which reached £1045, both figures being the largest on record. The liberal grant to subscribers of free and partly paid admission forms inaugurated some years ago is undoubtedly an influence which has helped the success and prosperity of the institution. The death of Mr. William Rathbone caused a vacancy in the office of vice-president. In response to the unanimous request of his colleagues on the council Sir William Tate, accepted the position and also continued the duties of treasurer. He resigned the chairmanship of the council, to which Mr. William Oulton, C.C., was unanimously elected. Sincere thanks were accorded to all subscribers and donors and also for the special donations. The legacies received during the year had been large and were as follows: from the executors of the late Mr. Henry Tate, formerly of Allerton, £1000; from those of the late Mr. James Barrow, £250; and from those of the late Mrs. Charles Turner, £200. The greater part of these legacies have been invested and a balance has been retained in order, if thought desirable after due consideration, to carry out a long contemplated improvement in the grounds of the institution. It was proposed to lay out the land in front of the building by making walks and flower-beds and planting shrubs and trees, and so giving additional attraction by beautifying and utilising more fully the extensive grounds; this was a matter of great importance in a convalescent home as an inducement to patients to remain as much as possible in the open air, a most valuable adjunct to treatment. Since the close of the year the committee of the Liverpool Transvaal War Equipment Fund had, through the Lord Mayor, contributed £500 for the endowment of a bed to be called "the Transvaal War Equipment Fund Bed" and to be used for the benefit of sufferers through the war or other local deserving cases, thus showing in a practical way the appreciation of the efforts to render service to the soldiers invalided in 1900. The financial statement showed that the total receipts were £5926, and that a balance had been reserved for improvements to the pleasure grounds (as referred to in the report) of £562 5*s.* 1*d.* There were now eight endowed beds and 14 free beds, among the latter being one supported by the West Derby board of guardians. The thanks of the subscribers were accorded to Dr. J. M. Chisholm, the visiting physician, and to the household and nursing staff.

August 11th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol Health Report.

IN his report for 1902 the medical officer of health of the city of Bristol, Dr. D. S. Davies, deals at some length with the housing of the working classes. Though there are in Bristol no large concentrated slum districts lending themselves to a sweeping comprehensive scheme for clearing out an insanitary area there are still isolated groups of houses and courts which require to be dealt with. When reporting in the year 1896 upon the best means of providing houses for those persons who were turned out of dwellings which were condemned as uninhabitable, the medical officer of health and the city engineer deprecated the erection of block dwellings, flats, or similar buildings tending to crowd a large population upon a small area. The corporation, no doubt having this expression of opinion in mind, has recently erected in different parts of the city 60 tenements, 22 of two rooms and 38 of three rooms. The rent of the former is 3*s.* 3*d.* per week and that of the latter is 4*s.* 6*d.*, while the number of inmates is restricted to three and five respectively. These houses are built in rows and are two storeys high. There is one tenement on the ground floor and the other on the first floor, the latter being approached from an iron balcony, three feet wide, which runs the whole length of the building and which is reached by a wide open fireproof staircase in the centre of the row. There is a large open yard at the back of the houses and each tenement has a washhouse and a water-closet. The bedrooms contain about 1000 cubic feet of air-space and each one has a fireplace. A municipal lodging-house to accommodate 120 persons is also being erected in Bristol at a cost of about £7000. There are at present in the city 35 registered common lodging-houses with accommodation for 819 persons. When discussing the retention of underground bakehouses in connexion with Section 101 of the Factory and Workshops Act, 1901, Dr. Davies says that the only logical way of dealing with such premises would be forthwith to condemn every one at present existing, as the Act itself permits no new one. In considering which of the 51 underground bakehouses should be retained the corporation has, however, decided to adopt suggestions which very closely follow those agreed upon by the Incorporated Society of Medical Officers of Health.

Action for Damages against the Hereford Corporation.

In view of the possibility of "return" cases of infectious disease many sanitary authorities which possess isolation hospitals are now in the habit of discharging patients only on the understanding that no responsibility attaches to the authority in the event of other cases of the disease occurring among members of the patient's household. The necessity for taking this precaution has been emphasised by the recent verdict of a Hereford county-court jury which awarded £30 damages to the father of a child said to have been negligently discharged from the corporation fever hospital whereby several other children contracted scarlet fever. The circumstances of the case differed somewhat from others in which damages have been paid by sanitary authorities. The patient in question, who remained in hospital for eight weeks, was attended throughout the illness and was discharged, not by the medical superintendent of the hospital but by a private practitioner. On the day of discharge the child was given a bath, the clothes were disinfected, and the child then returned for about ten minutes to the matron's room, which communicates with the hospital proper by a corridor. It was contended that during this period the patient became re-infected and upon returning home infected other children. The county-court judge in directing the jury laid great emphasis on the absence of a discharging block at the hospital and the non-provision of this accommodation evidently influenced the jury in its verdict.

The Meeting of the British Medical Association.

The camp which was organised at Swansea during the meeting of the British Medical Association was so pronounced a success that this method of supplementing hotel accommodation will no doubt be a feature of future meetings. At the Mumbles where the Swansea camp was situated the 20 bell tents and a mess tent were pitched in an inclosed two-acre field having a southern slope. Within 100 yards was Limeslade Bay, a tiny cove with a sandy bottom where bathing could be indulged in. There was no water-supply on the site of the encampment but sufficient for all requirements was brought in carts from a distance of one and a half miles. The general comfort of the campers was looked after by two camp orderlies from the 3rd Glamorgan Rifle Volunteers and the catering was undertaken from one of the Swansea hotels.

The Cossham Memorial Hospital.

The first meeting of the trustees of the scheme sanctioned by the Court of Chancery for the administration of the Cossham Memorial Hospital [illegible] the presidency of the Lord [illegible] approved of for the erection of [illegible] near Bristol. The institution [illegible] for 44 patients and will be surrounded by about four acres of land. The cost of building and furnishing is estimated at £23,300 and the remainder of the late Mr. Cossham's estate, which is about £80,000, is to form an endowment for the charity.

A Medico legal Cricket Match.

A cricket match was played at Cardiff on August 7th between a team of medical men and solicitors respectively and resulted in a draw very greatly in favour of the medical players.

August 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Chief Secretary and the Irish Medical Association.

THE conflict between the Local Government Board and the Irish Medical Association becomes more critical every week. Dr. L. Kidd of Enniskillen, President of the Association, has written to the Dublin papers in reference to the Chief Secretary's reply to a question by Mr. O'Brien, M.P., in which the former is reported to have said:—

> I think their claims would be more deserving of recognition if they abandoned such practices and awaited the report of the Viceregal Commission which is looking into the amalgamation of unions and other Poor-law matters.

And again:—

> They would be more likely to attain their object if, instead of pursuing these practices, they awaited the report of the Commission.

Dr. Kidd inquires whether the Chief Secretary has forgotten his answer to Dr. E. O. Thompson, M.P., on March 25th, when he stated:—

> [illegible] nother [illegible] highly [illegible] in the [illegible] a more economical administration of the [illegible]

Dr. Thompson himself also writes on August 1st and the following is an extract from his letter:—

> I have lying before me Mr. Wyndham's reply to a letter of mine distinctly refusing to enlarge the scope of inquiry of the Viceregal Commission so as to enable it to consider the grievances of the doctors.

He now proposes to ask the Chief Secretary to appoint a Royal Commission to report upon the amalgamation of unions and other Poor-law matters including the claims of the union medical officers of Ireland.

The Nursing Trouble at Granard.

Dr. Joseph Smyth, Local Government Board inspector,

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, AUGUST 6TH.

Typhus Fever in the East.

Mr. HERBERT ROBERTS asked the Secretary of State for India whether he had received any report from the medical officers attached to the Seistan-Nushki Railway survey party, or from Colonel MacMahon's Afghan Boundary Commission with reference to the appearance in their ranks of typhus fever or to the effect that several surveyors with one or other of these expeditions had perished from thirst in the Seistan deserts; and whether he could give any particulars as to the casualties which had taken place.—Lord GEORGE HAMILTON replied: I informed the hon. Member for North Manchester on July 30th that I had received no information as to the prevalence of typhus fever among the workers of the Quetta-Nushki Railway. As to the Seistan Irrigation and Boundary Commission it appears from Colonel MacMahon's reports that typhus fever is very prevalent in Seistan and that there was an outbreak in his camp early in May, six cases having occurred, of which five were fatal. Steps were at once taken for segregation and Colonel MacMahon reported on June 8th that his camp had a clean bill of health. On June 24th he reported the deaths of a native surveyor and three subordinates owing to the failure of their water-supply.

Adulterated Whisky.

Mr. KILBRIDE asked the Chancellor of the Exchequer whether he proposed to take any, and if so, what, steps with the view of securing the purity and maturity of alcoholic drinks; whether he had received any official reports showing that adulterated whisky was a cause of lunacy; and whether he would consider the advisability of setting up a standard of purity for spirits in the interest of public health.—Sir WILFRID LAWSON: Will the right hon. gentleman also say whether he has any official information showing the evils done by unadulterated whisky?—Mr. RITCHIE replied: I am afraid that the latter question is rather too large to be addressed across the floor of the House. With regard to the question by Mr. Kilbride the answer to the first two portions is in the negative. Of course, I shall be glad to consider any evidence or representations on the subject that may be laid before me.

Mr. MACVEAGH : on. gentleman whether he
has received any re in Glasgow on the subject
of lunacy following tch whisky?

No answer was given.

Trained Nurses and Nuns.

On the vote for the Local Government Board for Ireland, Mr. FARRELL said that owing to the action of the Local Government Board the nuns who had hitherto been the nurses in the Granard union hospital had had to retire and their place was now taken by lay nurses who were a considerable expense to the ratepayers. He did not object to the system of trained nurses, but he objected to the way in which the change had been carried out. Friction was brought about in the first place by the medical officer of the union who began to make adverse reports on the nuns. The latter bore with all the insults for four years, but in 1900 the position of affairs became intolerable. The inspector of the Local Government Board who was sent down in 1900 patched up a peace to which all parties agreed and the Local Government Board was largely to blame in the matter because it did not adhere to the arrangement made by that gentleman. In the end the Local Government Board, instead of deciding the personal issue, censuring those who ought to be censured, and laying down a course to be followed by the officials in future, sent an ultimatum to the board of guardians which it threatened to dissolve. The bishop, finding that there was no redress for the nuns, withdrew them from the institution and left the Local Government Board to find a way out of the difficulty.

Mr. WYNDHAM replied that no reflection whatever was cast upon the nuns. These ladies were doing excellent work in the union hospitals at great personal self-sacrifice and as their services were most acceptable to the patients it would be a great loss to the people of Ireland if they were to retire from the workhouses. But the nuns did not care to perform and, indeed, ought not to be asked to perform, some parts of hospital work and therefore it was essential that they should have the assistance of trained nurses. He had always expressed the view that the rates pressed heavily on the people of Ireland, but undoubtedly the desire for a higher standard of nursing now prevailed and, indeed, the guardians of the Granard union admitted its necessity. If therefore Dr. J. M. S. Kenny expressed regret for the manner in which he made some of his complaints with respect to the nuns why should not those ladies return to the Granard workhouse and bring to an end a lamentable state of things?

Mr. T. M. HEALY said that his sympathy was entirely with the ratepayers. Every fad of a medical man—the discovery of a new disease or a new cure—was certain to receive the support of the Irish Local Government Board. One did not read of these diseases and cures in Shakespeare or the Bible. The people of those days led as healthful lives as the people of to-day although they had no Local Government Board to look after them. If medical fads were to be carried out let it
of the local ratepayers but at the cost of the
small union hospital they must not expect all
might find in Guy's or St. Thomas's Hospital.
he drew from the whole matter was that there
should be some more representative people on the Local Government Board. The idea of making people happier and more comfortable was the last thing that entered into the minds of these gentlemen.

The matter then dropped.

FRIDAY, AUGUST 7TH.

The Motor-car Bill and Medical Men.

At the end of a 15 hours' sitting in connexion with the Motor-car Bill,

Mr. SCOTT MONTAGU moved the insertion of the following new clause, which explains itself: "A medical man driving a motor-car or cycle for the purpose of attending a patient who is in urgent need of his assistance shall not be liable to any penalties for exceeding the limit of speed provided under this Act."

Mr. LONG opposed the proposal on the ground that it was unnecessary. A medical man was always known in his district and no policeman would interfere with him.

Mr. SCOTT MONTAGU said that he knew of a case in which a medical man had been fined in such circumstances.

Major JAMESON appealed to the President of the Local Government Board to accept the amendment.

Mr. SCOTT MONTAGU said that he felt very strongly upon the point which, he mentioned, had been taken up by several of the medical journals. He could assure Mr. Long that the matter was not trivial

The proposed new clause was negatived without a division.

MONDAY, AUGUST 10TH.

The Case of Dr. McCarthy.

Dr. E. C. THOMPSON asked the Chief
of Ireland, whether he would explain
for Ireland had informed Dr. McCarth
the temporary appointment of medical officer of Tullamore Dispensary, that his conduct in resigning the appointment would be inquired into by a medical inspector and that if it was found that he had resigned without sufficient cause he would be prohibited in future from holding any Poor-law appointment; and whether he would state under what statute or by-law the Local Government Board had so acted.—Mr. WYNDHAM replied: Dr. McCarthy refused to enter upon the duties of the office to which he had been appointed with the approval of the Local Government Board. The Board thereupon requested the guardians to call upon him to take up his duties and stated that in the event of his still refusing to do so an inquiry would be held into the circumstances with a view to his removal from the office by sealed order. The authority for the Board's action in the case will be found in Sections 8 and 16 of the Poor Relief Act of 1851.

Salaries of Dispensary Medical Officers.

Dr. THOMPSON asked the Chief Secretary to the Lord Lieutenant of Ireland why the Local Government Board had refused in several instances recently to sanction an increase of salary granted to dispensary medical officers by boards of guardians.—Mr. WYNDHAM replied. Every application for an increase of salary receives the careful consideration of the Local Government Board and in any case in which the Board refuses to sanction an increase the reasons are fully communicated to the board of guardians concerned. If the honourable Member will give a reference to the particular case in which he is interested the reasons upon which the Board's decision was based will be ascertained.

Medical Officers with the Nigeria Force.

Mr. CHURCHILL asked the Secretary of State for the Colonies whether he would state how many medical officers and veterinary surgeons were serving with the Northern Nigeria Force during the month of June last.—Mr. CHAMBERLAIN replied: The establishment of the medical department in Northern Nigeria whose duties include attendance on both military and the civil officials, contains 27 medical officers, of whom, owing to the absence of the remainder on leave, about 18 are usually in
the Protectorate. The Kano-Sokoto expe
broken up in March and the small body of
in the field has been engaged in the pursui
I have no information as to the number of
surgeons attached to this small force.

TUESDAY, AUGUST 11TH.

Medical Consultations in Ireland.

Dr. THOMPSON asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware of a circular issued from the office of the Inspector-General of the Royal Irish Constabulary, dated July 20th, 1903, which forbids the medical attendants of the Royal Irish Constabulary calling in consultation any other medical man or specialist in any circumstances and, if so, whether he would cause the instant withdrawal of the circular.—Mr. WYNDHAM replied: The circular merely recited a rule which has been in operation for upwards of 30 years. The rule in no way prevents sick members of the force from employing medical men other than the police medical attendants. It merely points out that such medical assistance cannot be paid from public funds. It is not proposed to withdraw the circular.

WEDNESDAY, AUGUST 12TH.

Grievances of Irish Medical Officers.

Dr. THOMPSON asked the Chief Secretary to the Lord Lieutenant of Ireland whether the Irish Poor-law medical officers would be afforded any, and what, opportunity of having their alleged grievances inquired into by the Government and whether he would explain the reason why no notice had been taken hitherto of their remonstrances.—Mr. WYNDHAM replied: Any report which the Poor-law medical officers may make in writing in respect of their alleged grievances will be considered. No such representations have recently been addressed to the Local Government Board.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

Studies in Comparative Odontology. By Arthur S. Underwood, M.R.C.S., L.D.S., Professor of Dental Surgery, King's College, London. Price 5s. net.

BELL, GEORGE AND SONS, 4, York-street, Covent Garden, W.C.

Physical Chemistry for Physicians and Biologists. By Dr. Ernst Cohen, Professor of General and Inorganic Chemistry in the University of Utrecht. Authorised Translation from the German by Martin H. Fischer, M.D., Instructor in Physiology in the University of California. Price 6s. net.

BRITISH MUSEUM (NATURAL HISTORY), Cromwell-road, S.W.

A Monograph of the Tsetse-Flies (Genus Glossina, Westwood). Based on the Collection in the British Museum. By Ernest Edward Austen. With a Chapter on Mouth-Parts by H. J. Hansen, Phil. Doc. Price 15s.

COLLINGRIDGE, W. H. AND L., 148 & 149, Aldersgate-street, E.C.

Packing and Selling Fruit and Vegetables for Cottagers and Small Holders of Land. Gold Medal Essay. By R. Lewis Castle, F.R.H.S., Eight years Manager of a Midland Fruit Farm. Written for the Worshipful Company of Fruiterers. Price 1s.

HILL, WALTER, 71, Southampton-row, W.C.

The Holidays, 1903. Where to Stay and What to See. Price 1s.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Die Periodizitat der Diphtherie und ihre Ursachen. Epidemiologische Untersuchung. Von Dr. Adolf Gottstein, Arzt in Berlin. Price M. 1. 20

Das Problem der Syphilis und die Legende von der specifischen Wirkung des Quecksilbers und Jods. Von Prof. Dr. O. Rosenbach, in Berlin. Price M. 2.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LTD., Paternoster House, Charing Cross-road, W.C.

B. Bradshaw's Dictionary of Mineral Waters, Climatic Health Resorts, Sea Baths, and Hydropathic Establishments. 1903. Price 2s. 6d.

Notes of My Life. By George Wyld, M.D. Edin. Price 3s. 6d. net.

KIMPTON, HENRY, 13, Furnival street, Holborn, E.C.

Surgical Anatomy and Operative Surgery. By John J McGrath, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School. Price 18s. net.

LEWIS, H. K, 136, Gower-street, W.C.

[illegible] es Higgens, [illegible] al. Second [illegible] F R C S.E., [illegible] Price 7s. 6d.

Tr [illegible] Britain and [illegible] d Wilfrid B. [illegible] 5s.

MALOINE, A., 23-25, rue de l'École-de-Medecine, Paris.

Traité d'Analyse Chimique Quantitative. Par le Dr. Blais Pharmacien de 1re Classe.

L'Extirpation du Cancer du [illegible] de Clinique Chirurgicale à [illegible] *Price 4 francs.*

MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Traité de Pathologie Générale. Publié par Ch. Bouchard, Membre de l'Institut, Professeur de Pathologie Générale à la Faculté de Medecine. Tomes I. et II., chacun 18 francs; Tome III., 28 francs; Tome IV., 16 francs; Tome V., 28 francs; Tome VI., 18 francs.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, Calcutta.

[illegible] partments of the Government of India, No. 4). Price As. 8, or 9*d*.

SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton street, W.C.

Sight and Hearing in Childhood. By Robert Brudenell Carter, F.R.C.S., Consulting Ophthalmic Surgeon to St. George's Hospital, and Arthur H. Cheatle, F.R.C.S, Assistant Aural Surgeon to King's College Hospital. Price 2s. net.

SIMPKIN, MARSHALL AND CO., 4, Stationers' Hall court, E C.

Musical Service: Is it Right? By James Neil, M A. Second edition. Enlarged. Price not stated.

[illegible] Officers. By A. H. H. Maclean. Price 1s. 6*d*.

Appointments.

Successful [illegible] *ublic Institutions, and o* [illegible] *this column, are invite* [illegible] *ected to the Sub-Editor,* [illegible] *morning of each week,* [illegible]

FERGUS, WM. J. BRERETON, M.B., B.Ch., B A.O. R.U.I., has been appointed Assistant House Surgeon and Visiting Surgeon to the Stockport Infirmary.

JON [illegible]

KIR [illegible] of the County of Salop.

LAVERY, J. P., L.R.C P. & S. Edin., has been appointed Certifying Surgeon under the Factory Act for the Dundalk District of the County of Louth.

SMITH, J., M B., C.M. Aberd., has been appointed Medical Officer to the Nottingham Board of Guardians.

TUXFORD, ARTHUR W., M.B., M.R C S., L.R C.P., D.P.H., has been appointed Resident Medical Officer to the Baguley Sanatorium, near Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

[illegible] **DREN'S HOSPITAL**, Woodchurch-road, [illegible] Salary £100 per annum, with board, [illegible]

CANCER HOSPITAL (FREE) Fulham-road, S.W.—House Surgeon for six months, renewable. Salary £70 per annum, with board and residence.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior [illegible] Salary £70 per annum, with board, [illegible]

[illegible] ster.—Third Assistant Medical Officer. [illegible] 5, with board, lodging, washing, and [illegible]

[illegible] Assistant Medical [illegible] with board, apart- [illegible]

[illegible], Douglas, Isle of [illegible] Salary £82 a year, [illegible]

[illegible] sician, unmarried. [illegible]

[illegible] e Surgeon. Salary [illegible]

[illegible] N.—Male Resident [illegible] gs, and laundry.

NORTHAMPTON GENERAL HOSPITAL—Honorary Dental Surgeon.

PARISH OF BARRA.—Medical Officer and Public Vaccinator. Salary £119.

PARISH OF ST. LEONARD, Shoreditch.—Medical Officer for the Holywell District. Salary £100 per annum.

PECKHAM HOUSE ASYLUM, Peckham, S.E.—Junior Assistant Medical Officer. Salary £150 per annum, with board, residence, and laundry.

PRESTON, LANCASHIRE COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Initial salary £175, with apartments, board, washing, and attendance.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent-garden, W.C.—House Surgeon for six months. Salary at rate of £100 a year, with board, lodging, and washing.

[illegible] Assistant House Surgeon for six [illegible] 40 per annum, with board, washing, [illegible]

[illegible] **TORIA CENTRAL HOSPITAL**, Lisc rd.—[illegible] Salary £100, with apartments, board, and service.

WEST AFRICAN MEDICAL STAFF.—Seven Medical Officers. Salary £400 to £500 a year, with quarters, &c.

WESTMINSTER HOSPITAL (opposite Westminster Abbey).—Assistant House Surgeon.

WILLESDEN ISOLATION HOSPITAL.—Medical Superintendent. Salary £350 per annum.

Births, Marriages, and Deaths.

BIRTHS.

[illegible]

COUTTS.—On August [illegible] of F. J. Coutts, M.D., B.S. Lond., of a daughter.

HARVEY.—On August 2nd, at 117A, Queen's Gate, S.W., the wife of Sidney Harvey, of a son.

MARRIAGE.

WAKLEY—BA [illegible] Church, [illegible] Vicar of [illegible] M.A., Vic [illegible] Rev. H [illegible] Henry Wa [illegible] M P., to [illegible] Barron a [illegible] and grand-daughter of the late Dr. G. B. Barron, J.P., of Southport.

DEATHS.

BALFOUR.—On August 9th, at Westfield, Colinton, Midlothian, George William Balfour, M.D. St. And., F.R C.P. Edin., LL.D, one of His Majesty's Physicians-in Ordinary for Scotland, in his 81st year.

TANNER.—On August 8th, at Ben Rhydding, Yorks, Esther (Ettie), the beloved wife of John Tanner, M.D., 19, Queen Anne-street, W., suddenly at last, after a long and distressing illness, aged 57 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., have been received from—

A.—Mr. F. W. Axham, Lond.; Messrs. Arnold and Sons, Lond.; Messrs. Allen and Hanburys, Lond.; Aymard Patent Milk Sterilizer Co., Lond.: Mr. F. Alcan, Paris: A. E. T.; Messrs. Armour and Co., Lond.

B.—Dr. J. Cunningham Bowie, Cardiff; Messrs. Boord and Son, Lond.; Dr. R. Adams Brewis, Dursley; Dr. W. Blair Bell, Liverpool; Dr. A. L. Benedict, Buffalo, U.S.A.; Dr. F. Bushnell, Plymouth; Mr. J. W. Benson, Lond.; Mr. C. Birchall, Liverpool; Birkenhead, &c., Children's Hospital, Secretary of; Sir James Blyth, Lond.; Captain R. J. Blackham, R.A.M.C., Sheringham.

C.—Dr. J. Walter Carr, Lond.; Mr. W. M. Chowning, Minneapolis; Mr. Walter Cooper, Barnstaple; Clayton Hospital, Wakefield, Secretary of; Messrs. Cassell and Co., Lond.; Messrs. W. and R. Chambers, Edinburgh; Clark's Optimus Coffee Extract, Ltd., Lond., Secretary of.

D.—Mr. F. Davidson, Lond.; Devon County Asylum, Exminster, Clerk of; Messrs. G. L. Daube and Co., Frankfurt; D. L. T.

E.—Electrical Standardising Co., Lond.; Dr. W. Elder, Leith; Dr. W. O. Eastwood, Whitby, Ontario; Mr. Edward R. Emerson, New York; Captain Robert H. Elliott, I.M.S., Kelso; Mr. H. Elliot-Blake, Bognor.

F.—Dr. A. C. Farquharson, Bishop Auckland; F. H. M.

G.—Dr. G. M. Gould, Philadelphia; Great Eastern Railway Co., Lond., Continental Manager of; Mr. J. A. Galloway, Vareugeville-sur-Mer.

H.—Home Counties Nature Study Exhibition, Lond., Hon. Secretary of; Messrs. J. Hare and Co., Bristol; Holborn Union, Clerk of; Mr. J. S. Hosford, Lond.; Haslam Foundry and Engineering Co., Ltd., Lond.

I.—Mr. Irven, Lond.

J.—Mr. R. F. Jowers, Brighton; Dr. F. Fitzherbert Jay, Faversham; Mr. D. Janson, Christchurch; Messrs. W. and A. K. Johnston, Edinburgh; J. P. B.

K.—Captain F. Kiddle, R.A.M.C., Devonport; Dr. C. F. Knight, Portobello; Messrs. G. Kelly and Co., Lond.

L.—Dr. J. C. Holdich Leicester, Calcutta; Mr. H. K. Lewis, Lond.; Messrs. Lee and Martin, Birmingham; Lux; Légation de Suisse, Lond.

M.—Dr. S. G. Moore, Huddersfield; Mr. R. W. Murray, Liverpool; Dr. Alan H. Muir, Batley; Margate Corporation, Clerk of; Messrs. Macmillan and Co., Lond.; Maltine Manufacturing Co., Lond.; Dr. T. K. Monro, Glasgow; Manchester Medical Agency, Secretary of; Dr. R. Muir, Glasgow; Medical Society of Victoria, Melbourne, Hon. Secretary of; Messrs. Murray and Boyd, Glasgow; Medico.

N.—National Physical Laboratory, Teddington, Director of; Dr. C. R. Niven, Liverpool; Noble's Hospital, Douglas, Isle of Man; Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.

O.—Dr. George Oliver, Harrogate.

P.—Dr. D. T. Playfair, Bromley; Mr. Percy Pope, Lond.; Messrs. S. Pownceby and Co., Lond.; Mr. Young J. Pentland, Edinburgh; Petol, Ltd., Cambridge; Peckham House, Lond., Resident Licensee of; Mr. J. W. Preston, Lyme Regis.

R.—Dr. E. A. Roberts, Lond.; Mr. R. Redpath, Newcastle-on-Tyne; Mr. John Rubrah, Edinburgh; Dr. Nathan Raw, Liverpool; Dr. J. Bruce Ronaldson, Haddington; Royal College of Surgeons in Ireland, Dublin, Clerk of; Messrs. Robertson and Scott, Edinburgh; Royal Hospital for Sick Children, Edinburgh, Hon. Secretaries of.

S.—Dr. W. Muir Smith, Eastbourne; Mr. J. E. Sandilands, Cambridge; Mr. A. Stenhouse, Glasgow; Messrs. Sherratt and Hughes, Manchester; Messrs. Salamon and Co., Rainham; Mr. A. C. Sweeting, St. Neots; Scholastic, Clerical, and Medical Association, Lond.; Messrs. Sharland and Co., Lond.; Scotoma.

T.—Mr. E. Claude Taylor, Lond.; Messrs. Twiss and Browning, Lond.; Tallerman Apparatus Co., Lond.

V.—Vinolia Co., Lond.

W.—Walter Scott Publishing Co., Felling; Dr. David Watson, Glasgow; Mr. Louis B. Wilson, Minneapolis; Messrs. W. Wood and Co., New York; Mr. P. Wood, Dublin; Willesden Urban District Council, Clerk of; Dr. E. F. Willoughby, Lond.; Mr. S. Whitehouse, Lond.

Y.—Dr. W. McGregor Young, Leeds.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. E. Allen, Escrick; Mr. G. P. Anning, Kirkstall; Mr. R. Aubrey, Brent Knoll; Messrs. Ayrton and Saunders, Liverpool; Mr. W. Allen, Great Bridge; A. L.; A. H. F.; A. E. B.; A. W.; Dr. T. Angus, Cymmer; A. B.; A. H. A.

B.—Mr. M. Blok, Lond.; Barnwood House Hospital, Gloucester, Secretary of; Brandon and Byshottles Urban District Council, Clerk of; Messrs. J. L. Bullock and Co., Lond.; Messrs. Baillière, Tindall and Cox, Lond.; Dr. A. C. Begg, Lond.; Mr. G. Brown, Hanley; Mr. W. E. Baxter, Lewes; Bethel Hospital, Norwich, Clerk of; Mr. E. Blatchley, Lond.; Mr. W. Bernard, Londonderry; B. B. G.; B.; Mr. K. J. Bhamgara, Bollington; Bradford Union, Clerk of; Mr. B. Brown, Leicester; Dr. L. H. Bennett, Paignton.

C.—Mr. D. Cooper, Huntingdon; Mr. G. J. Cressey, Crawley; Dr. T. Colvin, Glasgow; Messrs. W. E. Cox and Co., Lond.; Mr. R. A. Caldwell, Bournemouth; Mr. C. E. Cowen, Cala, South Africa; Chester General Infirmary, Secretary of; Coppice (The), Nottingham, Secretary of; C. E. W.; Dr. F. J. Coutts, Lond.; Dr. D. McK. Crooks, Went Head.

D.—Dr. F. Dreaper, Dover; Dr. S. Davies, Woolwich; Mr. T. Dixon, Lond.; Mr. S. Downing, St. Leonards-on-Sea; Mr. S. S. Dancocks, Lond.; Messrs. H. Dawson and Co., Lond.

E.—Dr. H. L. Grant, Eastleigh; Mr. H. S. Elworthy, Lond.; Mr. E. A. Edington, Caterham; Eastern Counties Asylum, Colchester, Superintendent of; E. G. H. W.; E. W.

F.—Mr. J. Flack, Lond.; Mr. J. E. Francis, Northam.

G.—General Apothecaries' Company, Lond.; Gateshead Corporation, Clerk of; G. M. D.; G. M.

H.—Heigham Hall, Norwich, Medical Superintendent of; Dr. R. Hamilton, Douglas; Messrs. J. Haddon and Co., Lond.; Dr. G. Home, New Plymouth, New Zealand.

I.—Messrs. Idris and Co., Lond.; Messrs. Irvine and Garbutt, Birmingham; Dr. O. Inchley, Loughborough.

J.—Dr. A. H. James, Aberystwyth; Mr. Johnston, Southampton; J. T. C. C.; J. M. C.; J. K.; J. E.; J. N.

K.—Kent County Ophthalmic Hospital, Maidstone, Secretary of; Messrs. Kamm and Co., Lond.

L.—L. E.

M.—Dr. J. C. Maclean, Swindon; Dr. R. C. MacWatters, Porthcawl; Messrs. J. Maythorn and Son, Biggleswade; C. Midgley, Ltd., Manchester; Mr. J. J. Mason, Bollington; Melrose and Drover, Ltd., Leith; Dr. W. Murrell, Lond.; M. M.; Mr. B. N. Molineux, Richmond, Yorks.

N.—Mr. J. W. Norman, Ashburton; Mr. R. W. Nicholson, Ferndale; N. C. W.; North Staffordshire Infirmary, Hartshill, Secretary of.

O.—Mr. G. S. O'Rorke, Nottingham.

P.—Mr. W. F. Pigott, Dublin; Mr. W. K. Parbury, Sharnbrook; Mr. F. E. Pearse, Ripley; Portsmouth Borough Asylum, Clerk of; P. A. S; P. B. S.; P. J. B.

R.—Mr. G. T. Revell, Horrabridge; Mr. A. Roche, Dublin; Royal Infirmary, Newcastle-on-Tyne, Secretary of; Messrs. T. and F. Roberts, Birmingham; Ramsgate General Hospital, Secretary of; R. M. M.; R. J.

S.—Dr. J. W. Stenhouse, Manchester; Somerset and Bath Asylum, Catford, Clerk of; Mr. E. Simpson, Epperstone; Messrs. T. and H. Smith and Co., Edinburgh; Surgeon, Goodwick; Mr. H. R. Salmon, Lond.; Messrs. W. H. Smith and Son, Manchester; Major F. Smith, Woolston; Stockport Infirmary, Secretary of; Dr. H. Shelmerdine, Liphook; S. E. O.

T.—Dr. H. H. Thomson, Bridge of Weir; Mr. G. Thomas, Stockton Heath; Mr. E. Tatham, Potter Hanworth; Tower House, Leicester, Lady Superintendent of; Mr. W. H. Thomas, Bath; T. S. B.

V.—Dr. G. R. Vicars, Wood Dalling.

W.—Mr. A. F. Wilson, Shirebrook; Mr. J. E. Wilkins, Lond.; Mr. A. O. Way, Bassett; Mr S. Ward, Leicester; Walthamstow Urban District Council, Clerk of; W. E.; Messrs. Wright, Dain, Peyton and Co., Birmingham; Mr. F. J. Wheeldon, Middleton; Messrs. R. R. Whitehead and Bros., Lond.; Messrs. J. Wright and Co., Bristol; Mr. C. Webb, Margate; Messrs. Watkins and Osmond, Lond.; W. A. S.; Mr. J. Waters, Bildeston; W. E. T.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

For the United Kingdom.		To the Colonies and Abroad.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10*s*. Half a Page, £2 16*s*. An Entire Page, £5 5*s*.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris

An Address

ON

SCIATICA:

AN INQUIRY AS TO ITS REAL NATURE AND RATIONAL TREATMENT FOUNDED ON THE OBSERVATION OF UPWARDS OF 400 CASES.

Delivered at the Medical Graduates' College and Polyclinic

By WILLIAM BRUCE, M.D., LL.D. ABERD.

GENTLEMEN,—I propose to deal in this paper with the complaint known as sciatica and to lay before you for your consideration the theory which I have formed as to the real nature and seat of that disease. I venture to think that the views as to the etiology and pathology of sciatica which are at present accepted must be modified in the future and the treatment of this disease placed on a surer and more rational basis. My opportunities of seeing cases of sciatica are considerable. During the last 13 years I have taken short notes of 418 cases of this complaint, not to speak of nearly as many more I had seen in 20 years' previous practice but not recorded. This collection is more than double the number recorded by Fuller as observed by Valleix and himself. I find that the disease is, on the whole, more prevalent amongst men than women. Table I. shows that in the

TABLE I.—*Showing the Age and Sex Distribution.*

Years.	Males.	Females.	Total.
20-29	9	9	18
30-39	22	19	41
40-49	36	35	71
50-59	62	66	128
60-69	60	45	105
70-79	23	20	43
—	212	194	406

gr
bi
was distinctly more prevalent amongst men than women.

cases with which I have had to deal the proportion of males to females is as 100 to 90, whereas in the general population the ratio of males to females is 100 to 104. The preponderance, however, of males is not nearly so much as I find stated by other observers. For instance, in 124 cases reported by Valleix the proportion of males is 72 to 52, while Fuller gives as many as 61 to 14. As regards age incidence I find that the greatest number of cases occur between 50 and 59 years of age, followed closely by those from 60 to 69 years, though, as Table I. shows, no age except the very earliest is exempt from the possibility of attack. With regard to position in life my own impression is that it is as frequent amongst the poor as amongst the rich. It would not give fair results to quote my own statistics on this point. This opinion would be decidedly confirmed if we include cases of rheumatoid arthritis of the hip-joint, sciatica being, I believe, merely a preliminary stage of this crippling disease, and one from which the poor, for plain reasons, are likely to be greater sufferers than the rich.

The symptoms of a typical example of sciatica are something like the following. To begin with there is some feeling of soreness in the hip and thigh, varying in degree from tingling or a feeling of "pins and needles" to sharp pain. This pain is aggravated by movements of the leg or it may attack the unfortunate sufferer in bed at night. Certain kinds of movement originate or increase the painful feelings, notably the exertion of getting into bed or the attempt to cross the affected limb over the sound one. Along with this latter symptom there may be a certain amount of powerlessness to execute this particular movement. The patient almost always walks with a limp on the affected leg. When the pain is severe at night there is, as might be expected, a feeling of restlessness and, without actual startings, there are often small local cramps. A marked peculiarity of the pain is that after some time it comes to be complained of on the outer side of the leg, extending in some cases as low down as the heel. There are also occasional patches of anæsthesia, generally on the outside of the thigh or leg. *Such is a description of the symptoms of the complaint*; the signs are described by Osler as tenderness on pressure over the sciatic notch or in the middle of the thigh. He mentions also that there is tenderness on pressure on the lower part of the sacrum, also over the head of the fibula and behind the external malleolus and over the heel and toe, but not on the inside of the foot. Taylor's description is practically *identical.*

The pathology of sciatica as c
which I have had access is meag
indeed, a genuine neuritis, such
in a few cases. Osler affirms
nerve has been examined in several cases and that in the operation of stretching it has been observed to be swollen and in a condition of interstitial neuritis. Sciatica is a comprehensive term and one familiar, perhaps too familiar, both to the patient and to his physician. So much is this the case that I fear many medical men are content with the subjective evidence and neglect the objective aspects of the disease. Indeed, I can only thus explain the present persistent ignorance, if I may be allowed to use such a term, as to its real nature which seems universally to prevail. It is one of many examples of the dangers of generalising too much and of the mistaken idea that if we are able to label a complaint we, as a matter of course, know how to cure it. No belief could be more fatal to sound practice, not only in this case, but we may say in that of almost every ailment which afflicts humanity. In my early days I was content to accept, as I have said was the general rule, the patient's or his medical adviser's diagnosis and without any special local examination of the affected limb to proceed to treat sciatica by the usual round of waters, baths, and massage. The first clear indication for treatment I came to see as being imperative was the necessity for *rest* and the bad effects resulting from insisting on or allowing exercise or very rough or excessive massage of the limb. I was struck with this peculiarity in a disease which was supposed to depend to a large extent on mental conditions and which distraction of any kind should usually alleviate. Having thus become convinced of the absolute need for rest I began to think whether sciatica might not be an affection of the hip-joint. About this time I came across some remarks of a great surgeon, fortunately still left to us and to science, Mr. Jonathan Hutchinson, who was of the opinion that a certain number of cases of sciatica were really due to trouble in the joint. The next step in the history of the evolution of my opinion was naturally the *careful examination of the limbs of patients affected with* sciatica. At first, with the exigencies of a busy practice confined to a short season of the year, I did not carry out this examination so thoroughly as it should have been conducted, and even yet there are difficulties, especially, as you can understand, in the case of women, that prevent such a minute examination of the physical condition of the hip and its surroundings as ought to be gone through.

In examining a patient the subject of sciatica there is a certain routine which I have found from a lengthened experience to be best, and I would venture to recommend my professional brethren to follow the same method. Ask the patient to lie down, as he stands in his clothes, on his back on an even firm couch; then, bending the affected limb at the knee, perform the passive movements of flexion, external rotation, internal rotation, and extension by Thomas's method at the hip-joint of the affected leg. If the case be at all recent one or more of these movements will cause pain, very often sharp pain, as the patient's countenance frequently reveals. Having carefully noted these signs, then ask him to undress and proceed to inspect the gluteal region. With the patient lying flat on his face and relaxing his muscles, you note whether there is wasting in this region or a diminution in the original number of the folds of the nates, and on comparing those of the opposite hip and the two thighs also together I venture to predict that in almost every case of sciatica you will discover softening or wasting and flattening of the hip muscles and more or less obliteration of the natal folds of the affected side. With the patient lying on his sound side you then proceed to inspect the capsule of the hip-joint. In some cases you will find it more prominent on the affected side and in a very few (but very seldom, for obvious reasons) you may be able to discover that there is increased heat over the joint. The position of the articulation is best made out by making sure of the exact relation of the anterior superior iliac spine and the highest point of the trochanter corresponding to the joint you suppose to be affected. The next thing to do is to examine carefully and without prejudice the presence or absence of tenderness on pressure over the capsule. This investigation has to be gone about keeping in view the fact that the patient is not an impartial witness, so to speak; he is very apt to confound symptoms with signs and his mind has been so intent on the suffering, say, in his foot that he refuses to help you in your attempts to discover the important sign you wish to make out—i.e., whether coxal tenderness be present or absent. When it is considerable you are independent of his preconceived ideas. In many cases moderate pressure with the point of the thumb over some part of the capsule causes so much pain that he winces unmistakeably. Of course, to make yourself certain you compare the two sides and by all means follow the line of the sciatic nerve and try to discover whether there is or is not tenderness on pressure along its course.

But in order to draw a proper picture of sciatica it is necessary to consider some general questions which bear very strongly on its essential features; and the first matter to which I ask your attention is the nature and origin of pain. In dealing with this branch of my subject I scarcely need to apologise for making reference to Hilton. His book is one which should be in the hands not only of every young practitioner but it deserves to be continually consulted by us older men. In summarising the lectures on Rest and Pain as delivered by him before the Royal College of Surgeons of England more than 40 years ago he says "that every pain has its distinct and pregnant signification if we will but carefully search for it." And again: "I have striven by the agency of a more complete anatomy to render plain the meaning of pains which are obscure." Further on he says: "From the pain which follows the intrusion of a particle of dust into the conjunctiva to the most formidable diseases we have to treat pain the *monitor*." From beginning to end of his discourse he dwells on the absolute necessity of following up the pain to its real source and by very numerous examples he enforces this lesson on his readers. The causes of pain he searches for by a study of the anatomy of the nerves and he does not rest with mere empty phrases, such as neuritis, neuralgia, &c. He goes on till he reaches the real origin of the causes of suffering. Thus, without exception, from one end of the book to the other he finds no instance in which nerve trunks are affected but rather the ultimate endings of their filaments. Has not nature arranged her lines of communication so as to carry messages correctly between those minute organs of sensation and the centres of motion and feeling? And is it likely that on the face of it she should have so constructed her telegraphic circuits that a mere passing influence, such as cold, heat, or even a certain amount of pressure, would seriously interfere with her perfect economy? Who in our day would refer toothache to anything else but to something which, like caries, has its source in some distinct *local* mischief either in the teeth or their sockets? It may be said, What, then, of trigeminal neuralgia? I am not prepared to deny that a continual series of shocks shall not injure the merely conductive parts of the nerve, just as the wire carrying an electric current may not be altered so as to affect its powers of conduction. Yet from some little study of that fell disease—tic doloureux—I boldly affirm that in every such case the pain originally starts from the sensory extremities of the nerve affected and that anything more essentially barbarous in the way of surgery than the excision of a portion of its substance or of the entire Gasserian ganglion I cannot conceive, unless it be forcible stretching of the sciatic nerve for sciatica. There is very little serious pathological evidence of inflammatory matter except the assertions of some surgeons of having found adhesions between the nerve and its sheath, or a swelling or redness of its substance in the course of an operation. Surely some careful morbid anatomist would oftener have found something more distinctly abnormal.

It is said in almost all the books that tenderness on pressure of the nerve trunk is to be found in most patients, but in the many cases which I have observed closely I have made this sign out in only a very few. Again, why should there not be neuritis of such nerves as the ulnar, which lies so near the surface, as of the sciatic nerve? Oh, it is said, the latter is so much more exposed to injury. Is it really more exposed than the ulnar? I consider it nothing less than an accusation against the Master Builder of us all to make such a statement. A very little consideration will show that it is incorrect. The nerve trunk from beginning to end is elaborately protected and so ingeniously isolated and packed away as to be as little liable to injury and violence, consistent with the movements of the leg, as it is possible to make it. Everything, therefore, *a priori* points to the extrinsic origin of the pain of sciatica. Where, then, is the starting-point of the pain? I answer, In the hip-joint. I do not deny that it may have its origin in tumours pressing on the pelvic portions of the nerve or in very rare cases from the presence of large accumulations in the lower bowel. But with a long experience of over 30 years, during which time my attention has been specially directed to sciatica, I have never seen such causes excite real sciatic pains, although I have seen them affect the anterior crural nerve and its branches. If we assume that the origin of the pain we are dealing with is in the hip-joint, what are the proofs? I have said that the pain is extrinsic in origin. Where and what are the connexions between the hip-joint and the extremities of the sensory nerves which supply the skin of the outside of the leg and the heel? The nervous supply, according to Cunningham, is the following: 1. Anterior crural nerve. The posterior division supplies the quadriceps extensor muscles and gives off irregular branches to the hip-joint as well as to the knee-joint. 2. Obturator nerve. The anterior division supplies the hip-joint. 3. Sacral plexus. The nerves to the quadratus femoris and the gemellus inferior supply a twig to the hip-joint. To trace the connexion between the nerve-supply of the joint and the areas of the skin in which the pain is felt we find that the cutaneous branches of the above nerves, according to the same authority, are as follows: 1. The anterior division of the anterior crural supplies the internal cutaneous and middle cutaneous, the inner side of the thigh, and the back of the knee. The posterior division by the long saphenous supplies the inside and back of the leg. 2. The anterior division of the obturator nerve supplies cutaneous branches to the inside and back of the thigh. The posterior division supplies the knee-joint. 3. The sacral plexus supplies cutaneous branches to the heel and the skin of the leg below the knee, except to the inner side which is supplied by the long saphenous.

It is plain from the foregoing account that there is ample communication between the hip-joint and the skin of the thigh and leg to account for the referred pains from the joint to the cutaneous surfaces. Hilton's account of the nerve distribution[1] is as follows:—

> I shall not dwell upon the anatomy of the hip-joint except to remind you that its muscles perform their functions in groups, that each group has a trunk nerve of its own, and that each nerve contributes a branch to the hip-joint itself. A branch of the anterior crural nerve passes to the hip-joint, a branch of the obturator going to the capsular ligament and to the ligamentum teres, and a branch proceeding to the posterior aspect of the hip-joint from the sacral plexus which supplies the gemelli, the quadratus femoris, and the obturator internus. This anatomy should be borne in mind because it explains how it happens that the remote and sympathetic pains associated with an inflammatory condition or chronic disease of the hip-joint are not always found at the same part of the limb. We all know very well that in some cases of hip-joint disease one of the earliest symptoms is remote from the actual seat of mischief—namely, pain within the knee or on the inner side of the knee-joint; and we are familiar with the explanation of it—namely, that the obturator nerve, which contributes a branch to the ligamentum teres, sends a branch to the interior of the knee-joint, to the inner side of it, and sometimes even lower down. The inflammation or a diseased condition of this ligament necessarily involves the little branch of the obturator nerve and a "sympathetic" pain is produced at the other end of the same nerve on the other side of the knee or within the knee-joint. As it is frequently with the obturator, so it ought to be sometimes with respect to the other nerves of the hip-joint; but the frequency of this knee pain, whether within the knee-joint or on its inner side, indicates that the ligamentum teres is the most common seat of early disease. We observe this same "sympathetic" pain in old persons who may or may not have had a slight injury to the hip but in whom the ligamentum teres softens down and disappears. Such persons often complain of severe pain within or on the inner side of the knee-joint. Some years ago I saw a case in which, after injury to the hip, this symptom of pain in the knee-joint was well and early marked. Afterwards the limb was slightly shortened and the foot everted, imitating the reputed symptoms of fractured neck of the thigh bone. I subsequently examined this patient's hip-joint and found that the injury was confined to the ligamentum teres.
>
> Now suppose the anterior part of the capsular ligament (which receives a branch from the anterior crural) is inflamed, applying the ...

---

[1] Hilton on Rest and Pain, p. 306, second edition.

same law, y . patient with a
diseased hip- e knee or on the
inner side o ural nerve sends

ıerefore, must be considered as
ı and not always to be relied

is no local symptom which
so certainly as the
inflamed. This is on
positively rely when
vided he is able tc

of an inflammatory con-
ased heat exists it is abso-
it is one of the symptoms
a very early stage of hip-
.o seat of the inflammatory

increase of temperature
symptoms of lameness
allude, you find an incre
joint, you may be sure c
condition.

Here, then, we see two sources of fallacy which have existed in the diagnosis of hip-disease—one as to the position of the sympathetic pains and the other as to the non-existence of heat. If we say that the "sympathetic" pain is always on the inner side of, or within, the knee and we are called to a case where it does not exist, of course it excludes from our consideration hip-joint disease; or if we say that every inflamed joint is marked by an increase of heat and we are called to a case where this does not exist (but I think it is very rarely absent), of course that again would exclude hip-joint disease from our consideration.

I have tabulated 418 cases of sciatica of which I have had personal knowledge. All the cases came directly under my cognisance, most of them under my own care and treatment. I am sorry to say that I have not been able, for different reasons, to give all the details I should have wished to be in a position to present to you. One point I must regret not having kept an exact record of is *lameness* of the affected leg. I think I may fairly enough assume that it was present in the great majority of the cases. In only one do I find it noted that walking did not cause pain and lameness. In 283 cases not specially observed I found 61 with tenderness on pressure over the capsule of the hip-joint, whereas in 125 cases specially examined (see Table II.) on this and the following points affecting the movements of the hip-joint there was evidence of tenderness on pressure over the capsule in 55 per cent. In 39 per cent. there was pain on flexion, in 41 per cent. pain on rotation inwards, and in 38 per cent. on rotation outwards. In only a very limited number was there found manifest distension of the capsule—say 1 per cent.—and in still less a number—0·25 per cent.—was there any evidence of heat over the joint discovered. In 52 per cent. of the cases there was evidence of gout or rheumatism in other joints and in 22 per cent. there was evidence of the occurrence of lumbago. In 80 per cent. of the cases taken altogether one or other of the above symptoms was present. A small number of cases which had begun as sciatica had gone on to ankylosis of the joint and would have been set down as examples of rheumatoid arthritis of the hip.

TABLE II.—*Diagnostic Results obtained from 125 Specially Observed Cases.*

Gout or rheumatism	observed in	65	cases or	52	per cent.
Lumbago	,,	28	,,	22	,,
Pain on flexion... ...	,,	49	,,	39	,,
Pain on internal rotation	,,	51	,,	41	,,
Pain on external ,,	,,	48	,,	38	,,
Wasting of glutei ...	,,	49	,,	39	,,
Incomplete natal folds	,,	37	,,	30	,,
Tenderness over capsule	,,	69	,,	55	,,

One or other of these signs was observed in 100 cases, or 80 per cent.

TABLE III.—*Showing the Average Intensity of the Symptoms (when Observed).*

Pain on flexion	70	per cent.
Pain on internal rotation	60	,,
Pain on external ,, ...	60	,,
Wasting of glutei...	55	,,
Absence of natal folds	55	,,
Tenderness of capsule	60	,,

In 283 cases not specially observed tenderness over the capsule was noticed in 61, or 21 per cent., and gout or rheumatism in 140, or 48 per cent.

The following are still to be noted: One better, taking exercise; one, heat over the joint; four, fulness over the joint; and one, tenderness over the sciatic nerve.

What may be assumed as fair inferences from these data? I think it may be fairly said that sciatica is some affection of the hip-joint and not neuritis of the sciatic nerve, that it is connected with the gouty or rheumatic diathesis, and also with so-called mono-articular rheumatic arthritis of the hip. The flattening of the glutei and obliteration of the folds of the nates which were present in 39 and 30 per cent. respectively of the cases strongly support this contention. It has also to be remembered that the nerve-supply to these muscles comes not from the sciatic nerve but from the sacral plexus. On the other hand, if sciatica really were an affection of the sciatic nerve, why should not the muscles of the whole leg be affected and why should the wasting and other nerve derangements be so localised and not extend to the whole limb? Again, even those who speak of sciatica as being a true neuritis are forced to allow that the electrical reaction of degeneration of muscles is never present. This is still further shown by the fact that sciatica rarely if ever leads to a permanent affection of the nerves and muscles. Indeed, it is characteristic of the disease that the vast majority of cases recover in time—it may be long or short—and in my opinion the length is mainly dependent on the fact of sufficient rest having been given to the joint—though they may be attacked again and again. If we have really to deal with an inflammatory condition of the hip in gouty and rheumatic subjects (and surely there is no good reason for these diseases not attacking this as well as the other joints, although it may be admitted that these diseases have a partiality for the extremities of the circulation) there is abundant reason for prescribing rest. It is not so easy to say why it should be of such importance in a mere neuritis, although I confess that this argument cannot be pushed very far. Again, many cases are aggravated by too early massage and forced movements, as Buzzard says, while careful massage and cautious passive movements at a later stage are of the utmost value. Do not these results tell strongly in favour of the affection being connected with the hip-joint, being precisely what we find in gouty and rheumatic affections of the knee and other joints? So accomplished a physician as Osler advocates very strongly the need for rest to the affected limb and even goes the length of insisting upon the application of the long splint to the leg. One wonders how he did not take one step more and come to see that such a support fixes the hip-joint and by so doing relieves the pain, giving the articulation (just as in so-called strumous disease) the best chance for recovery. We have seen that there is no proof of any real neuritis of the sciatic nerve, that there are ample means of communication between the extremities of the nerves in the joint and the surface of the skin of the leg, that movements of the joint are often either limited in extent or cause pain or both, that the muscles most closely connected with the hip articulation become atrophied, that there is very often tenderness on pressure over the capsule of the hip-joint and even some swelling, and occasionally, but rarely for a manifest reason, a feeling of heat imparted to the hand, that sciatica is universally admitted to be related to gout or rheumatism in most patients, and lastly, that gout and rheumatism are actually simultaneously present in other articulations.

Most important of all is the fact that in almost every case of sciatica there is present lameness of the limb affected. The patient constantly limps when walking. It is true that a very small percentage of those I have recorded (in 1 in 400) the sufferer has felt better when taking exercise. This can easily be explained on the same principle as properly applied massage giving relief. Does not the surgeon (for I hold sciatica to be a surgical disease) in every other case of lameness of the lower extremities, and, indeed, in every affection of the movements of the upper limb, proceed primarily to consider which of the joint surfaces are diseased? If on careful examination there is found no clear evidence of any trouble anywhere but in the hip-joint, while there is such to be found in that articulation, are we not justified in assuming the cause of the lameness to be connected with this joint and in considering that sciatica means trouble in the hip-joint and as a rule nowhere else?

It is difficult, if not impossible, to prove statistically a connexion between sciatica and rheumatoid arthritis of the hip-joint. Where a pelvic deposit is found and still more when ankylosis has been established the case is set down at once in the category of so-called rheumatoid arthritis and is removed from that of sciatica. I can only state my belief that the one complaint merges into the other and that it is impossible at certain stages to distinguish between them and that they are in fact one disease, sciatica when unrelieved eventually terminating in rheumatoid arthritis which in its turn leads to bony deposits on the femur and also on the ilium, these changes again proceeding to ankylosis between the femur and the pelvis.

Seeing then that trouble of a gouty or rheumatic kind does account for all the signs and symptoms of sciatica, is there any necessity to look for other explanations of the pains? We have seen that there is no pathological evidence of the presence of neuritis. Neuralgia is too vague a term to found a decision upon. In the course of my studies of the disease I have come across the cases given by Fuller 40 years ago (six in all) in his well-known treatise on rheumatism which I think unconsciously prove that the view of sciatica originating in the hip-joint is the correct one.

In the first case the patient was "easy when lying down, but the least attempt at motion invariably caused acute pain in the hip, thigh, and leg. The act of coughing, sneezing, or laughing were also productive of an attack." In the second case "the act of coughing, sneezing, and the least attempt at motion in bed brought on a paroxysm (and so also did pressure, however slight, in the course of the nerve)." In the third case (sciatica in both legs) "any attempt at motion gave rise to involuntary starting of the limb." In the fourth case "his easy position was lying on his back in bed with his knee slightly flexed. There was not any tenderness of the nerve on pressure." In the fifth case "the pain extended from the left hip down to the ankle, but no specially tender spot could be discovered in the course of the nerve. The pain was of a dull wearing character but was much increased by action and every act of straining, as in coughing, sneezing, and the like." In every case the origin of pain in the joint seems a complete explanation of the symptoms. In one of the cases tenderness on pressure over the nerve is described as being present, while in two it is said to have been absent. That the extremities of the nerves supplying the skin over the course of the main nerve should have been excited, so to speak, in this one instance is surely not to be wondered at, even if the starting-point was in the hip-joint.

When we come to the question of the proper treatment for sciatica there is very little room for difference of opinion. The main point—rest for the articulation—is insisted on equally by the advocates of the view that sciatica is of the nature of neuritis as it is a necessity if the hip-joint be affected. Given so much, there is very little more demanded by the advocates of the latter theory. Blisters, for example, may do some good; and, at any rate, their proper application demands rest for some time in bed. And the same may be said of applications in the form of sedative lotions and fomentations. Cure by acupuncture has almost entirely disappeared, a proceeding much in vogue 30 years ago. So much for the local treatment in the early stages. Massage and electricity, it is generally allowed, are contra-indicated at this period of the illness. The greatest advocates for the seat of the complaint being in the hip-joint must allow that when the inflammatory period is past these remedies are of the greatest service. In the way of constitutional treatment anti-gout and anti-rheumatic remedies are recommended equally from both points of view. The use of oil of turpentine has undoubtedly proved of benefit, some say from its purgative effects. But may not that be the result of its diuretic action? This would hold good whether effusion was present in the nerve sheath or within the capsule of the joint itself. Calm consideration of the results of treatment will, I think, go to show that the theory of a hip-joint affection squares more readily with the facts than with the view commonly accepted that the disease is an affection of the sciatic nerve. If so, then we shall be founding our practice on a clearer and more distinct comprehension of the disease we have to treat and shall not be led away by false and ill-digested assumptions of the effects of so-called cures supported it may be by rash and over hasty observations.

PS. (August 15th, 1903).—I have been much struck in cases I have come across lately with the fact that the pain seems to be almost always limited at the commencement of the attack to the region of the hip. Why so, if the sciatic nerve be *primarily* affected?

A Clinical Lecture

ON

THE SIGNIFICANCE OF PAIN AND TENDERNESS IN CASES OF INFLAMMATION OF THE APPENDIX.

Delivered at the London Hospital on July 3rd, 1903,

By C. W. MANSELL MOULLIN, M.D. Oxon., F.R.C.S. Eng.,

SENIOR SURGEON AND LECTURER ON SURGERY AT THE LONDON HOSPITAL; EXAMINER IN SURGERY AT THE UNIVERSITY OF CAMBRIDGE.

Gentlemen,—The abdominal viscera are for the most part entirely insensitive to pain. The nerves with which they are supplied are not connected directly with that part of the brain which is concerned with the development of sensation. This has long been known to be true of individual organs under special conditions. An ulcer of the stomach, for instance, may exist, unknown and unsuspected, for an indefinite length of time until suddenly it perforates and sets up acute peritonitis. The intestine may be torn across inside the abdomen without the patient being aware at the moment that he has sustained any serious hurt. Great lengths of intestine have before now been cut away accidentally.[1] After colotomy, when an unnecessary amount of bowel protrudes at the artificial anus, the intestine may be divided with scissors, or cauterised, or held with artery forceps without a sign of pain. An ulcer may develop in the appendix and remain unnoticed, so far as pain is concerned, until the floor gives way. A loop of gangrenous bowel may be resected and sutured under the patient's eyes. I have known a man walk into hospital 24 hours after an accident with a ruptured bladder, only concerned because he did not pass any urine. Incising the stomach in gastrotomy or the intestine in enterostomy is not felt. Isolated facts of this kind have long been known; arguing from them it has been found possible to perform extensive operations upon many of the abdominal viscera under local anæsthesia, the wall of the abdomen only being rendered insensitive. On the other hand, a very slight stimulus that affects the parietal portion of the peritoneum causes acute pain. Dragging upon the mesenteric attachment, for instance, is very painful. I have known even the slight pull caused by placing a ligature around a protruding portion of the colon after colotomy to bring on an attack of colic. Applying Dupuytren's enterotome to the cæcum does the same. Lennander[2] has described a series of abdominal operations under local anæsthesia in which he carefully and systematically investigated this point, always with the same result. The least tension upon the root of the mesentery (not upon other parts of it) causes pain which is nearly always referred to the umbilicus. The effect is the same whether there is a free mesentery or whether the peritoneum is reflected from off the sides of the viscera, leaving a portion of the circumference of the bowel attached to the parietes by cellular tissue. Pressure, whether external, due to some cause acting upon the abdominal wall, or internal, arising from the mutual relations of adjacent viscera, has exactly the same effect. Applied to the viscera it is not felt. The wall of the bowel or of the stomach can be clamped with pressure forceps and the arteries tied without exciting the *least sensation*, so long, that is to say, as there is no traction. Applied to the parietal peritoneum, on the *other* hand, either directly at the edge of an incision or indirectly through the abdominal wall, the least touch is felt at once and most acutely.

---

[1] Fowler: Annals of Surgery, 1894, vol. xix.

[2] Centralblatt fur Chirurgie, Feb. 23rd, 1901, No. 8.

Inflammation of the parietal peritoneum or of the post-peritoneal cellular tissue, whether due to an irritant acting directly upon the serous surface or to absorption from some comparatively distant source of infection, naturally makes the parts that are sensitive already tenfold more so. The slightest traction becomes almost intolerable. On the other hand, inflammation has no effect whatever upon the visceral layer. The wall of the bowel, whether inflamed or not, is quite insensitive. It has no sensory nerves. It has been suggested by Lennander[3] that one source of abdominal pain may be the chemical action upon the nerves of toxins absorbed from the intestine and carried into the neighbourhood of the nerve twigs by the lymphatics without necessarily causing inflammation. This must be regarded as doubtful, or at least as not proven, and it follows, therefore, as a natural corollary from the above facts that in the absence of other mechanical stimuli the cause of abdominal pain and colic is either pressure or traction upon the branches of the spinal nerves which are distributed mainly, if not entirely, to the abdominal walls, and that the intensity of the pain (so for as the individual is concerned) depends upon the degree of traction or pressure on the one hand and upon the condition of the surrounding tissues as regards inflammation upon the other.

It follows, moreover, that in acute inflammation of the appendix (1) absence of pain is no indication that the most serious mischief is not going on. On more than one occasion I have operated and found the appendix on the point of giving way in spite of the patient's protestations that he had never had more than a twinge of pain. 2. The initial pain of acute inflammation of the appendix which is so commonly referred to the umbilicus is due to the peristaltic action of the cæcum or of the appendix dragging upon the attachment of the peritoneum to the abdominal wall. This is especially likely to occur when the appendix is fixed by adhesions or the mesentery is short or twisted upon itself. In one case of inflammation of the appendix in which Lennander was operating under local anæsthesia the slightest traction upon the anterior layer of the parietal peritoneum caused pain which the patient spontaneously described as exactly like that which he suffered during an attack. 3. The cessation of this umbilical pain without improvement in the other symptoms is due to cessation of the peristalsis caused by the inflammation having spread to the muscular coat of the bowel. When this occurs the wall of the bowel is no longer able to contract and this source of pain disappears. That this is so is shown by the fact, which I have often pointed out, that the cessation of the umbilical pain is coincident with the formation of a local swelling which at this stage of the disease is due to distension of the bowel and thickening of its walls by inflammatory exudation. 4. The development of local pain, which as a rule precedes by some short time the cessation of the umbilical pain, means that the inflammation has spread from the appendix to the parietal peritoneum or to the post-peritoneal cellular tissue. These are the only structures concerned (at this period of the disease) which are supplied with nerves capable of transmitting the sensation of pain. Absence of local pain does not indicate anything. Severe pain is of serious import, as it implies either wide extent or great severity of inflammation.

Tenderness on pressure in cases of inflammation of the appendix may be deep or superficial, or both deep and superficial tenderness may be present at the same time and in the same place. Deep tenderness (which I shall deal with first) is naturally restricted to those parts of the abdominal walls and viscera which are supplied with sensory nerves. The bowel itself, whether inflamed or not, is not tender on pressure except where it is in contact with the post-peritoneal cellular tissue, so that the pressure can be transmitted to this. The presence of deep tenderness in inflammation of the appendix indicates that the inflammation has spread to the parietal peritoneum or to the cellular tissue beneath it. Deep tenderness may be general all over the lower part of the abdomen, or it may be confined to, or, what is especially frequent, most marked at, one spot which is known as McBurney's point. "This point is very accurately in the adult from one and a half to two inches inside of the right anterior superior spinous process of the ilium on a line drawn to the umbilicus. In children it is, in proportion to their size, so much less distant from the spinous process. Occasionally this most sensitive spot will be found half an inch or so nearer the pubes and sometimes this sensitive area will be larger than usual, but from the first hours of the disease, even up to the end of several days, this sign may be clearly made out in every case." "In late stages of the disease this sign does not usually exist."[4] According to McBurney this spot, which is only to be made out by deep pressure, corresponds to the base of the appendix. In a measure this is correct, but it is more accurately described as corresponding to that part of the parietal peritoneum which is in closest and most immediate connexion with the lymphatics that run from the inflamed organ. These, conveying the toxins, or in many instances, no doubt, the organisms themselves, from the appendix, become inflamed. The inflammation spreads from their walls to the surrounding cellular tissue and the serous membrane near, and as a result the sensitiveness becomes so great that pressure, even weeks after the acute attack has subsided, causes pain.

As an assistance in diagnosis there can be no doubt of the value of this point. It is an indication that the parietal peritoneum at that spot is unduly sensitive from some cause, and by far the most common cause is the extension of inflammation from the appendix. But of course this is not the only cause, and as the lymphatics from other viscera contained in the abdomen and pelvis may either communicate with those from the appendix or lie in their immediate neighbourhood it is evident that a similar tender spot may occur in other circumstances. Like all the other symptoms of inflammation of the appendix it must not be taken by itself but in conjunction with the others that are present at the same time. In exceptional instances the most tender spot lies at the back immediately over the crest of the ilium. This is strongly suggestive of an appendix lying behind the colon or at least of inflammation spreading directly upwards in the subserous cellular tissue in that situation, a variety of inflammation of the appendix in which I have often found the constitutional symptoms to be far more important and serious than the local ones. More frequently there is a very tender spot near the brim of the pelvis, most easily reached through the wall of the rectum. In one case under my care contraction of the bladder was exceedingly painful. The appendix was adherent to it and the bladder when it contracted naturally dragged upon it and through it upon the parietal peritoneum. Wherever it occurs this deep local tenderness at the beginning of an attack indicates the part of the parietal peritoneum which is first involved. Later, when the inflammation has spread more widely, the local becomes merged in the general tenderness which extends all over the lower part of the abdomen. But in cases in which no operation is performed it may, like McBurney's spot, become evident again later; the inflammation subsides last in the part which was first and most severely attacked. I have seen this well marked on several occasions and no patient can be considered safe from a relapse so long as this tender spot persists.

In one case of peritonitis following inflammation of the appendix under my care local tenderness was entirely absent. I have known the same thing to occur after perforation of a gastric ulcer and I believe the explanation to be the same in both instances. In both there were a great deal of effusion into the general peritoneal cavity and but little evidence of reaction or inflammation, and in both I believe the nervous system was overwhelmed so suddenly, partly by the shock, partly perhaps by the rapid absorption of unusually virulent toxins, that it was incapable of feeling pain. Absence of deep tenderness, therefore, when other well marked symptoms of inflammation of the appendix are present, may be regarded as of very grave import.

In addition to this deep tenderness there is in most cases of inflammation of the appendix a very marked degree of cutaneous hyperæsthesia Some patients describe the sensation caused by touching the skin with the finger as tickling; to others it causes positive pain and they shrink even from the contact of the bedclothes. In the majority of instances the distribution of this cutaneous hyperæsthesia corresponds to the segmental area described by Head[5] as the eleventh dorsal, but the areas corresponding hypertrophy of the heart and chronic myocarditis. Some of the attacks are very much like the syncope anginosa of the older writers. In Cases 3 and 4 the symptoms were those of myocardial disease associated with dilatation of the heart. Case 5, the most characteristic instance of the group, presented an extraordinary series of vascular and cerebral manifestations.

---

[3] Mittheilungen aus den Grenzgebieten der Medicin und Chirurgie, Band x., Heft 1 und 2.

[4] McBurney: Discussion before the Medical Society of New York February, 1891.

[5] Brain, vol. xvi.

CASE 2. *Unusual sensations in the chest; constantly recurring vertigo with slow pulse; subsequent attacks with complete loss of consciousness; pulse-rate usually as low as 28, sometimes sinking to 20; arterio-sclerosis; duration of the symptoms for about six years; sudden death; calcification of the coronary arteries and the root of the aorta, with hypertrophy of the left ventricle.*—The case is given in full in my lectures on angina pectoris (1895). Of the subsequent history Dr. Houston of Troy, New York, writes (Jan. 5th, 1897): "Mr. V.'s pulse continues at about 30 to the minute with an occasional intermittence. He has now very marked vertigo, perhaps 25 attacks each day, each time nearly but not quite losing consciousness. He has no headache, sleeps well, and says he is very comfortable except for these sinking 'spells' and weakness." Jan. 25th, 1898: "Mr. V. has had some very bad attacks of late. In the present month he has twice fallen to the sidewalk while conversing with friends, loss of consciousness being absolute." March 13th, 1898: "The attacks of vertigo with unconsciousness have occurred at shorter intervals through January and February. After a period of complete rest he improved somewhat; pulse-rate 27 to the minute." On March 2nd, 1899, the patient died suddenly. On the 8th Dr. Houston wrote: "The day before Mr. V. died he had an attack of syncope on the street. In the evening he felt unusually well and played checkers with his son. He retired early and slept well. In the morning he got up and had his tub and went back to bed in order to have his breakfast. Just as the tray came he fell back suddenly and in a few moments died." The necropsy showed extensive calcification of the coronary arteries and the root of the aorta, with hypertrophy of the left ventricle. Dr. Houston states that at times his pulse fell to as low as 20 to the minute. The usual rate was 28.

This very remarkable case illustrates the long duration of the affection, fully six years, the syncopal type, without apoplectiform symptoms or convulsions, and the coronary artery changes.

CASE 3. *Attack of faintness, with a slow pulse; great cardiac weakness with pallor and syncopal attack; gradual recovery.*—The patient, a man, aged 57 years, was referred to me by Dr. J. Newton on April 4th, 1900 The patient had been a hard-working man who had lived carefully and indulged in no excesses. He had not used tobacco or alcohol. He had typhoid fever 20 years previously. His mother died from heart trouble at the age of 63 years. Two brothers had died from heart trouble at the ages of 30 and 40 years respectively. Two weeks before the onset of the present illness he had had a great deal of extra work and worry. On Nov. 14th, 1899, while walking to his place of business he felt faint, continued to walk, though slowly, and had no pain. He went to his office, walked upstairs, chatted with his foreman, then started home quietly. He felt very faint and excessively weak and was breathing very slowly. When he got home he was very pale, the left foot was particularly cold, and the left hand was very pale. He had no pain. His pulse became exceedingly slow—down to 38 and even lower. From this time on he was in bed for two months and had constantly recurring attacks of great pallor and coldness with cardiac weakness and slow pulse. During this time he had two fainting attacks in which he got very pale and cold. The heart's action gradually strengthened and he was able to get up and to move about the room. He had since then gradually improved but had had to be very careful and to go very slowly. When last seen he complained of a remarkable tickling and feeling of numbness in the left hand and the left foot, with a sensation of pulsation in the fingers. He was a very healthy-looking man, of good colour, with a good complexion. The eyes were clear; there was slight arcus in the left. The pulse was 72 and regular; the tension was plus; the artery was distinctly sclerotic. The apex beat was not visible; there was no increase in the area of transverse cardiac dulness. At the apex both sounds were clear, the first being loud and ringing. The aortic second sound was not accentuated. Altogether he seemed remarkably well and it was difficult to believe that he had had such a serious cardiac attack only a few months before.

CASE 4. *Attacks of transient vertigo with pulse; syncopal attacks; cardiac dilatation with œdema and enlargement of the liver; gradual persistence of the bradycardia; sudden death.*—was a robust, healthy-looking man, aged 61 years, of good habits and good family history. Except mental overwork and the stress and strain associated there were none of the factors leading to arterio-sclerosis. When about 35 years of age he had severe burns of both hands and the face which had been long in healing. Many members of his family had a pulse-rate of about 60. In the spring of 1899 I saw him during convalescence from an attack of bronchitis and was then impressed with the feebleness of the heart sounds; the pulse was firm and full, not specially slow. In the autumn of the same year he had an attack of syncope and it was then noticed that the pulse was slow. He also had transient attacks of vertigo. Early in the spring of 1900 he had another very severe attack of syncope in Philadelphia with prolonged collapse and great feebleness of the heart. He recovered rapidly, but the pulse remained at about 35. In the summer he became very neurasthenic and was unable to stand slight noises and had a distressing feeling of tension in the head. In July, August, and September there were much flatulency and gastro-intestinal disturbance and on exertion a tendency to fainting. There were râles at the bases of the lungs, slight cough, swelling of the liver, and signs of cardiac insufficiency. It was impossible to feel the apex beat, the area of transverse dulness was increased, the sounds were muffled, and there was a soft apex bruit. He was under the care of Dr. Holford Walker of Toronto who had the advantage of the counsel of Dr. McPhedran and of Dr. Musser of Philadelphia. I also saw the patient early in August. Gradually the heart grew stronger but without any change in the pulse-rate, which was constantly between 30 and 40. On no occasion did I find a "coupled rhythm." From October, 1900, to January, 1902, he improved steadily and was able to take long walks and to get back much of his accustomed vigour. On the morning of Feb. 5th, while getting out of bed, he complained of not feeling very well, was nauseated, and fell back in the bed and died in a few moments.

CASE 5. *Fainting "spells" with slow pulse; slight arterio-sclerosis; epileptiform attacks; remarkable discrepancy between the heart and pulse rate; death in an attack.*—A man, aged 56 years, a farmer, was admitted to hospital on May 15th, 1900. He complained of dyspepsia and a nervous affection. There was nothing of any moment in his family history. When eight years old he had typhoid fever; as a youth he had malaria and at the age of 21 years he had measles. Twenty-five years before he had an attack of gravel. He had never had any venereal disease. His habits had been good. He used neither alcohol nor tobacco. He had been a large eater. Until five years previously he was a shoemaker. In August, 1899, he had two fainting "spells" which lasted for about 10 or 15 minutes. In November he began to notice that after exertion there was a feeling of suffocation. He had had to be extremely careful in his diet; if he took too much food or very indigestible articles he would feel sick at the stomach or everything would grow dim and misty before his eyes. He had had in all four severe fainting attacks, in each of which he was unconscious for at least ten minutes. He had had many of the mild, slight attacks. The patient was a fairly well nourished, well-built man; the mucous membranes were a little anæmic. The tongue was coated. There were no tophi. Dorsal decubitus; there were no cyanosis and no arcus; the pupils were equal and normal. The pulse was of good volume, of about normal tension, regular, and 28 to the minute; the vessel wall was distinctly felt but was not greatly sclerosed. He had a moderate grade of funnel breast; the expansion of the chest was good; the lungs were clear throughout. The point of the maximum impulse of the heart was seen and felt in the fourth interspace, 10 centimetres from the middle line and one centimetre inside the nipple line; there was no thrill. Absolute dulness began on the fourth rib and extended from the right sternal border to the point of maximum impulse in the fourth interspace. There was a loud well-marked first sound, with which there was a soft systolic bruit, traceable as far out as the anterior axillary line. The second sound was well heard and clear. Between the clearly heard heart beats at times there was a faint systolic sound heard after the first and separated from the next by a long interval. This abortive character of the alternate heart beat, "coupled rhythm," was noted on the edge of an incision or indirectly through the abdominal wall, the least touch is felt at once and most acutely.

Inflammation of the parietal peritoneum or of the post-peritoneal cellular tissue, whether due to an irritant acting directly upon the serous surface or to absorption from some comparatively distant source of infection, naturally makes the parts that are sensitive already tenfold more so. The slightest traction becomes almost intolerable. On the other hand, inflammation has no effect whatever upon the visceral layer. The wall of the bowel, whether inflamed or not, is quite insensitive. It has no sensory nerves. It has been suggested by Lennander[3] that one source of abdominal pain may be the chemical action upon the nerves of toxins absorbed from the intestine and carried into the neighbourhood of the nerve twigs by the lymphatics without necessarily causing inflammation. This must be regarded as doubtful, or at least as not proven, and it follows, therefore, as a natural corollary from the above facts that in the absence of other mechanical stimuli the cause of abdominal pain and colic is either pressure or traction upon the branches of the spinal nerves which are distributed mainly, if not entirely, to the abdominal walls, and that the intensity of the pain (so far as the individual is concerned) depends upon the degree of traction or pressure on the one hand and upon the condition of the surrounding tissues as regards inflammation upon the other.

It follows, moreover, that in acute inflammation of the appendix (1) absence of pain is no indication that the most serious mischief is not going on. On more than one occasion I have operated and found the appendix on the point of giving way in spite of the patient's protestations that he had never had more than a twinge of pain. 2 The initial pain of acute inflammation of the appendix which is so commonly referred to the umbilicus is due to the peristaltic action of the cæcum or of the appendix dragging upon the attachment of the peritoneum to the abdominal wall. This is especially likely to occur when the appendix is fixed by adhesions or the mesentery is short or twisted upon itself. In one case of inflammation of the appendix in which Lennander was operating under local anæsthesia the slightest traction upon the anterior layer of the parietal peritoneum caused pain which the patient spontaneously described as exactly like that which he suffered during an attack. 3. The cessation of this umbilical pain without improvement in the other symptoms is due to cessation of the peristalsis caused by the inflammation having spread to the muscular coat of the bowel. When this occurs the wall of the bowel is no longer able to contract and this source of pain disappears. That this is so is shown by the fact, which I have often pointed out, that the cessation of the umbilical pain is coincident with the formation of a local swelling which at this stage of the disease is due to distension of the bowel and thickening of its walls by inflammatory exudation. 4. The development of local pain, which as a rule precedes by some short time the cessation of the umbilical pain, means that the inflammation has spread from the appendix to the parietal peritoneum or to the post-peritoneal cellular tissue. These are the only structures concerned (at this period of the disease) which are supplied with nerves capable of transmitting the sensation of pain. Absence of local pain does not indicate anything. Severe pain is of serious import, as it implies either wide extent or great severity of inflammation.

Tenderness on pressure in cases of inflammation of the appendix may be deep or superficial, or both deep and superficial tenderness may be present at the same time and in the same place. Deep tenderness (which I shall deal with first) is naturally restricted to those parts of the abdominal walls and viscera which are supplied with sensory nerves. The bowel itself, whether inflamed or not, is not tender on pressure except where it is in contact with the post-peritoneal cellular tissue, so that the pressure can be transmitted to this. The presence of deep tenderness in inflammation of the appendix indicates that the inflammation has spread to the parietal peritoneum or to the cellular tissue beneath it. Deep tenderness may be general all over the lower part of the abdomen, or it may be confined to, or, what is especially frequent, most marked at, one spot which is known as McBurney's point. "This point is very accurately in the adult from one and a half to two inches inside of the right anterior superior spinous process of the ilium on a line drawn to the umbilicus. In children it is, in proportion to their size, so much less distant from the spinous process. Occasionally this most sensitive spot will be found half an inch or so nearer the pubes and sometimes this sensitive area will be larger than usual, but from the first hours of the disease, even up to the end of several days, this sign may be clearly made out in every case." "In late stages of the disease this sign does not usually exist."[4] According to McBurney this spot, which is only to be made out by deep pressure, corresponds to the base of the appendix. In a measure this is correct, but it is more accurately described as corresponding to that part of the parietal peritoneum which is in closest and most immediate connexion with the lymphatics that run from the inflamed organ. These, conveying the toxins, or in many instances, no doubt, the organisms themselves, from the appendix, become inflamed. The inflammation spreads from their walls to the surrounding cellular tissue and the serous membrane near, and as a result the sensitiveness becomes so great that pressure, even weeks after the acute attack has subsided, causes pain.

As an assistance in diagnosis there can be no doubt of the value of this point. It is an indication that the parietal peritoneum at that spot is unduly sensitive from some cause, and by far the most common cause is the extension of inflammation from the appendix. But of course this is not the only cause, and as the lymphatics from other viscera contained in the abdomen and pelvis may either communicate with those from the appendix or lie in their immediate neighbourhood it is evident that a similar tender spot may occur in other circumstances. Like all the other symptoms of inflammation of the appendix it must not be taken by itself but in conjunction with the others that are present at the same time. In exceptional instances the most tender spot lies at the back immediately over the crest of the ilium. This is strongly suggestive of an appendix lying behind the colon or at least of inflammation spreading directly upwards in the subserous cellular tissue in that situation, a variety of inflammation of the appendix in which I have often found the constitutional symptoms to be far more important and serious than the local ones. More frequently there is a very tender spot near the brim of the pelvis, most easily reached through the wall of the rectum. In one case under my care contraction of the bladder was exceedingly painful. The appendix was adherent to it and the bladder when it contracted naturally dragged upon it and through it upon the parietal peritoneum. Wherever it occurs this deep local tenderness at the beginning of an attack indicates the part of the parietal peritoneum which is first involved. Later, when the inflammation has spread more widely, the local becomes merged in the general tenderness which extends all over the lower part of the abdomen. But in cases in which no operation is performed it may, like McBurney's spot, become evident again later; the inflammation subsides last in the part which was first and most severely attacked. I have seen this well marked on several occasions and no patient can be considered safe from a relapse so long as this tender spot persists.

In one case of peritonitis following inflammation of the appendix under my care local tenderness was entirely absent. I have known the same thing to occur after perforation of a gastric ulcer and I believe the explanation to be the same in both instances. In both there were a great deal of effusion into the general peritoneal cavity and but little evidence of reaction or inflammation, and in both I believe the nervous system was overwhelmed so suddenly, partly by the shock, partly perhaps by the rapid absorption of unusually virulent toxins, that it was incapable of feeling pain. Absence of deep tenderness, therefore, when other well-marked symptoms of inflammation of the appendix are present, may be regarded as of very grave import.

In addition to this deep tenderness there is in most cases of inflammation of the appendix a very marked degree of cutaneous hyperæsthesia Some patients describe the sensation caused by touching the skin with the finger as tickling; to others it causes positive pain and they shrink even from the contact of the bedclothes. In the majority of instances the distribution of this cutaneous hyperæsthesia corresponds to the segmental area described by Head[5] as the eleventh dorsal, but the areas correspondi to the tenth and twelfth are not uncommonly affected as well. The whole of these areas may be equally sensitive, or there may be one point in front or behind far more sensitive than the rest. Occasionally the hyperæsthesia is confined to one surface of the body, either anterior or posterior, and sometimes it is equally well marked on the left side as on the right. In one case under my care both the extent and the degree of hyperæsthesia were greater on the left side than on the right, without, so far as the appendix was concerned when it was exposed by operation, there being any apparent reason for it.

---

[3] Mittheilungen aus den Grenzgebieten der Medicin und Chirurgie, Band x., Heft 1 und 2.

[4] McBurney: Discussion before the Medical Society of New February, 1891.

[5] Brain, vol. xvi.

This local hyperæsthesia is evidence that the corresponding spinal centre is receiving from some part of the body to which its nerves are distributed stimuli of unwonted intensity and that it is in consequence unduly sensitive to ordinary impressions. These stimuli may come from the muscles. It is well known that the skin over the insertion of muscles that have been overworked is intensely hyperæsthetic. Or they may come from branches distributed to the abdominal wall. Quite recently I have had under my care a case of retroperitoneal abscess of very large size, not connected with any of the viscera, lying behind the liver and stomach, causing, as one of its most prominent symptoms, extreme sensitiveness of the skin on the right side of the body over the region of the sixth to the tenth dorsal segmental areas. Or they may come from the abdominal viscera, travelling to the centre along its visceral branches. But, as Head has pointed out,[6] they do not come from the peritoneum. So long as the inflammation is confined to the surface of the serous membrane there is no true cutaneous hyperæsthesia in peritonitis. Like McBurney's point, therefore, cutaneous hyperæsthesia over the region of the eleventh right dorsal segmental area may occur under a variety of conditions: the stimuli that cause the morbid activity of this centre may come along any of its branches, muscular, parietal, or visceral; but when the hyperæsthesia is definitely associated with other evidence pointing to inflammation of the appendix it may be taken as a clear indication that the wall of the appendix itself is involved and that, therefore, though the inflammation may subside, it will in all probability leave some permanent alteration in the appendix which will necessitate operation later.

There is one other point about the cutaneous hyperæsthesia in inflammation of the appendix which, if borne out by further observations, is of very great importance. Sudden cessation of the hyperæsthesia, without at the same time any corresponding improvement in the general symptoms, suggests very strongly that the appendix has become gangrenous and that immediate operation is absolutely necessary to prevent septic peritonitis. I have seen this in two well-marked cases of inflammation of the appendix and I have known a similar occurrence in a case of twisted ovarian pedicle in which also cutaneous hyperæsthesia was present at the first. The exact relation between these events is not obvious at first sight. It probably means that when the inflammation is so intense as to lead to gangrene either the nerves are no longer able to convey stimuli to the centre involved or that the centre itself is exhausted and can no longer respond. But whatever may be the explanation there can be no doubt of the fact that in these three cases the cessation of the hyperæsthesia coincided with the beginning of gangrene, and in such circumstances I regard nstant operation as imperatively required.

---

[6] Loc. cit.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—The following officers and members of the council for the session of 1903–4 were elected at the annual general meeting of this society on July 23rd. Council: Dr. J. Ford Anderson, Dr. C. W. Chapman, Mr. H. J. Curtis, Mr. H. L. Carre-Smith, Mr. Clinton T. Dent, Dr. C. N. Gwynne, Dr. E. Hobhouse, Dr. H. R. Hutton, Dr. R. Hutchison, Mr. F. Jaffrey, Dr. C. J. Macalister, Dr. A. Morison, Mr. R. H. Parry, Dr. J. P. Parkinson, Mr. George Pernet, Mr. H. Betham Robinson, Mr. Sydney Stephenson, Dr. S. B. Smyth, Mr. Harold J. Stiles, Dr. Frederick Taylor, Dr. James Taylor, Mr. J. W. Thomson Walker, Mr. R. H. A. Whitelocke, and Dr. A. W. Wills. Honorary treasurer: Mr. R. Clement Lucas. Honorary secretaries: Dr. George Carpenter, Dr. Theodore Fisher, and Dr. G. A. Sutherland.

ON THE SO-CALLED STOKES-ADAMS DISEASE (SLOW PULSE WITH SYNCOPAL ATTACKS, &c.).

BY WILLIAM OSLER, M.D. McGILL, F.R.C.P. LOND., F.R.S.,
PROFESSOR OF MEDICINE JOHNS HOPKINS UNIVERSITY, BALTIMORE.

DEFINITION.

Stokes-Adams disease is a clinical condition characterised by (1) a profound disturbance in the automatic mechanism of the heart—true bradycardia, hemisystole (false bradycardia), and allorythmia; (2) nervous symptoms—vertigo, syncope, pseudo-apoplexy, and epileptiform attacks; and (3) secondary symptoms—Cheyne-Stokes breathing, cardiac asthma, angina pectoris, and the vaso-motor accompaniment of profound heart-shock. The post-mortem changes are not constant. In a few cases coarse lesions of the nervous system have been found, in a small number no lesions whatever; in a large proportion of the cases arterio-sclerosis is present. The clinical picture is very variable—there are acute, rapidly fatal cases, chronic cases in which for years the patient has slow pulse with syncopal or pseudo-apoplectic attacks, and forms in which slight but well-characterised attacks occur at intervals in persons apparently well.

HISTORICAL NOTE.

Adams's description is of interest.[1] His patient, a man, aged 68 years, was of full habit and subject to oppression of breathing and cough. When seen he was just recovering from the effects of an apoplectic attack which had suddenly seized him three days before, but he was well enough to be about the house and even to go out. What attracted Adams's attention were the character of the breathing and the remarkable slowness of the pulse (30 to the minute). His regular attendant informed Adams that during seven years this patient had had not less than 20 apoplectic attacks. After a day or two of heaviness and lethargy he would fall down completely insensible and on several occasions he had hurt himself. The pulse would become slower than usual and the breathing loudly stertorous. He never had any paralysis after the attacks. Death followed an attack and the heart was found to be very fatty. The valves were sound. There was no statement about the coronary arteries. R. W. Smith[2] refers to this case, and states that he had also noted a condition of slow pulse with fatty heart.

Stokes's much more important contribution is entitled "Observations on some Cases of Permanently Slow Pulse." He describes the case of a man, aged 68 years, who had recurring fainting fits which left him without any unpleasant effects. During three years he had had at least 50 seizures. They were induced by any circumstance tending to impede or to oppress the heart's action, as sudden exertion or distended stomach. He was never convulsed. The duration of the attack was seldom more than four or five minutes and during this time he was perfectly insensible. He had never been paralysed. When admitted his general health seemed to be very good. There was an apex systolic bruit and the pulse was 28 to the minute. The arteries appeared to be in a state of permanent distension, "the temporal arteries ramifying under the scalp just as they are seen in a well-injected subject." An interesting feature in this case was that the patient could ward off attacks by a peculiar manœuvre. "As soon as he perceived symptoms of the approaching attack he directly turns on his hands and knees, keeping his head low, and by this means he says he often averts what otherwise would end in an attack." While his heart was beating only at 28 Stokes noticed that there were occasional semi-beats between the regular contractions, eight of them in the minute. On his readmission there was noted a new symptom, a remarkable pulsation in the right jugular vein, which was more than double the manifest ventricular contractions.

Beyond the occasional reports of cases not much of special importance has appeared in England on the subject. The condition is only mentioned incidentally in Allbutt's "System of Medicine." Gibson discusses it in a very good section in his "Diseases of the Heart." In France Charcot called attention to it in 1872, but to Huchard we owe a revival of interest, and in the various editions of his "Traité des Maladies du Cœur," under the name Stokes-Adams disease is found the best description in literature. In Germany the condition has not attracted attention, but within the past two years excellent papers have appeared by His, jun., Hoffmann, Jaquet, and Luce in the *Deutsches Archiv fur Klinische Medicin*. In the United States a most comprehensive study of the slow pulse was made by the late Dr. D. W. Prentiss[4] of Washington when he presented before the Association of American Physicians a remarkable case in which the condition had persisted for a period of nearly two years in association with very frequent fainting fits. Of the 94 cases which he abstracted from the literature there were 32 which belong to the condition under consideration. In the case reported by Dr. Prentiss there was a necropsy, and it is stated that neither the aorta nor the coronary artery was atheromatous, which is somewhat remarkable considering the extreme grade of sclerosis in the peripheral arteries. There were no lesions of the pneumogastric nuclei. In the discussion which followed the above case Dr. F. P. Kinnicutt and Dr. Jacobi narrated typical cases. In 1895 I described the condition briefly in my lectures on angina pectoris. Dr. R. T. Edes[5] has reported a series of cases and given an exhaustive analysis of the literature of the subject. Babcock has a good chapter in his recently issued work on "Diseases of the Heart."

---

[1] Dublin Hospital Reports, vol iv., 1827, p. 396.
[2] Dublin Journal of Medical Science, vol. ix., 1836.
[3] Dublin Quarterly Journal of Medical Science, 1846.

CONDITIONS IN WHICH SLOW PULSE IS MET WITH.

1. *Physiological.*—The statement is made that dark persons and the dark races—e.g., Bretons—have a pulse rate below the average. It does not appear to be the case with the African race. I know a family most of the members of which have a pulse-rate of about 60; one son died from Stokes-Adams disease, another, perfectly healthy, has sometimes a pulse rate of only 48. Cases which can be called physiological are not very common. The slow pulse of Napoleon rests upon tradition;[6] it has been suggested that his epilepsy and attacks of apathy may have been associated features in a chronic form of Stokes-Adams disease. There are remarkable instances in the literature, many of them quoted by Dr. Edes, of persons in good health for years with a pulse-rate from 30 to 40. The slow pulse of old age may be considered normal, but the physiological limit is passed when with advancing arterio-sclerosis there are attacks of vertigo or syncope.

2. *Neurotic.*—1. Organic disease of the brain, the cord, or [illegible] fall below 60; in neurasthenia bradycardia may be a special feature. We must recognise, too, that severe and fatal attacks of Stokes-Adams disease may occur without any discoverable lesion in the nervous system, the heart, or the arteries.

3. *Toxic.*—(1) Inorganic poisons, such as lead; (2) bacterial poisons, as in diphtheria and typhoid fever; (3) vegetable poisons, as digitalis and tobacco; and (4) metabolic poisons, as in jaundice, uræmia, the puerperal state, and after prolonged exertion.

4. *Cardiac and cardio-vascular lesions.*—Valvular, myocardial, and arterial, alone or in combination; a large majority of the cases of bradycardia with nervous symptoms belong to this group.

VARIETIES OF STOKES-ADAMS DISEASE.

What is called Stokes-Adams disease is in reality a syndrome or symptom-complex, not a disease with constant anatomical lesions and a uniform etiology. The cases may be arranged in three categories.

1. *Post-febrile group.*—Following, more rarely in the course of, an acute infection—such as typhoid fever, diphtheria, pneumonia, scarlet fever, or rheumatism—bradycardia may occur with vertigo, syncope, or epileptiform seizures. A fair number of such cases are on record, and while Huchard is not inclined to regard them as instances of Stokes-Adams disease the main features are not to be distinguished. The attacks may recur for weeks, as in Schuster's case.[7] This form seems more hopeful, though the first attack may prove fatal. The following is a good illustration.

CASE 1.—A physician, aged 35 years, had on Feb. 8th, 1901, a streptococcus pharyngitis of moderate intensity, followed by acute nephritis. He convalesced satisfactorily and went to Florida on March 12th. He felt very well and had been taking a fair amount of exercise. At 4.55 A.M. on the 21st he was awakened out of sleep with a very peculiar sensation of numbness in the fingers and he felt faint and was covered with sweat. The pulse was only 16 to the minute but very forcible at the radial artery. He fainted and the physicians found him in a condition of extreme cyanosis and collapse, the sweat pouring from him, with a pulse-rate of about 20, quite regular, and the same at the heart and wrist. He was given hypodermic injections of ether and inhalations of oxygen. At 9 o'clock his pulse was 30. In the afternoon he regained consciousness and the pulse rose to 50. He was dazed and had no recollection of the attack. The cyanosis was extreme. On the next day his pulse was 60 but it was two or three days before he recovered completely. From the statements made by his physicians it was evident that his condition must have been critical. When I examined him on April 20th he was a robust, healthy-looking man, rather stout. The pulse was regular, with no intermission, and 76 to the minute. The apex beat was within the nipple line. The sounds were clear and of normal relative intensity; there was no change in the recumbent posture or bruit after exertion. The pupils were equal. The knee-jerks were present. There were no signs of any disturbance in the nervous system. In such a case it is reasonable to suppose that myocardial changes had followed the acute infection and were responsible for the profound disturbance in the automatic action of the heart with an associated acute dilatation. It is worth noting that in Case 11 the slow pulse was first noticed after an attack of pneumonia.

2. *Neurotic group.*—(1) With coarse lesions of the nervous system, as pressure on the medulla following injury (Holberton), narrowing of the vertebral canal (Lépine, Boffard), tumour pressing on the vagus, and degeneration of the trunks of the vagi. There has been no observation showing degeneration of the nuclei of the medulla. Charcot and Huchard have laid great stress on the bulbar features of the disease, but in the cases above referred to, particularly those of Holberton, Lépine, and Boffard, in which the symptoms were most characteristic, the lesions were extrinsic. A remarkable case is reported by Neuburger and Edinger in which a neurasthenic man, aged 46 years, with obstinate constipation, had vertigo and fainting attacks when at stool. For nine days before his death the attacks were associated with deviation of the head and eyes and a pulse-rate of 18 to the minute. The necropsy showed absence of the right lobe of the cerebellum and a varix close to the accessorius nuclei, with beginning hæmorrhagic infarction. (2) Without recognisable lesions. Typical attacks of Stokes-Adams disease of maximum severity are on record in which the most careful examination has failed to find any changes in the heart, the arteries, or the nervous system. Dr. Edes's first case, that of a woman, aged 50 years, with a very neurotic history, hadfor seven or eight months recurring seizures, with loss of consciousness, &c., in which the pulse fell to 20 to the minute. She died in an attack; the necropsy made by Dr. Councilman was negative.

3. *Arterio-sclerotic group.*—In this group there are obvious changes in the circulatory system. So large is the majority of the cases in this division that Huchard's dictum is justified, "L'étiologie est cette de la sénilité artérielle." My experience is confined almost entirely to this form. The histories, which I have condensed as much as possible, give a fair picture of the phases and forms of this remarkable condition.

CLINICAL HISTORIES.

All my cases, 12 in number, were in males; three of the patients were above 76 years of age and six were between 50 and 70 years of age. The youngest was 35 years old, the case following a streptococcus infection. Excluding this patient, my cases fall into three categories—a group of five cases with very severe and acute symptoms; a senile goup of four cases; and a milder form in younger men, two cases.

I.—SEVERE CASES.

The patients in the severe cases are men as a rule in the pre-senile stage and they present well-marked cardio-vascular lesions. In Case 2 there was extensive calcification of the coronary arteries and of the [illegible]

[illegible]

hypertrophy of the heart and chronic myocarditis. Some of the attacks are very much like the syncope anginosa of the older writers. In Cases 3 and 4 the symptoms were those of myocardial disease associated with dilatation of the heart. Case 5, the most characteristic instance of the group, presented an extraordinary series of vascular and cerebral manifestations.

CASE 2. *Unusual sensations in the chest; constantly recurring vertigo with slow pulse; subsequent attacks with complete loss of consciousness; pulse-rate usually as low as 28, sometimes sinking to 20; arterio-sclerosis; duration of the symptoms for about six years; sudden death; calcification of the coronary arteries and the root of the aorta, with hypertrophy of the left ventricle.*—The case is given in full in my lectures on angina pectoris (1895). Of the subsequent history Dr. Houston of Troy, New York, writes (Jan. 5th, 1897): "Mr. V.'s pulse continues at about 30 to the minute with an occasional intermittence. He has now very marked vertigo, perhaps 25 attacks each day, each time nearly but not quite losing consciousness. He has no headache, sleeps well, and says he is very comfortable except for these sinking 'spells' and weakness." Jan. 25th, 1898: "Mr. V. has had some very bad attacks of late. In the present month he has twice fallen to the sidewalk while conversing with friends, loss of consciousness being absolute." March 13th, 1898: "The attacks of vertigo with unconsciousness have occurred at shorter intervals through January and February. After a period of complete rest he improved somewhat; pulse-rate 27 to the minute." On March 2nd, 1899, the patient died suddenly. On the 8th Dr. Houston wrote: "The day before Mr. V. died he had an attack of syncope on the street. In the evening he felt unusually well and played checkers with his son. He retired early and slept well. In the morning he got up and had his tub and went back to bed in order to have his breakfast. Just as the tray came he fell back suddenly and in a few moments died." The necropsy showed extensive calcification of the coronary arteries and the root of the aorta, with hypertrophy of the left ventricle. Dr. Houston states that at times his pulse fell to as low as 20 to the minute. The usual rate was 28.

This very remarkable case illustrates the long duration of the affection, fully six years, the syncopal type, without apoplectiform symptoms or convulsions, and the coronary artery changes.

CASE 3. *Attack of faintness, with a slow pulse; great cardiac weakness with pallor and syncopal attack; gradual recovery.*—The patient, a man, aged 57 years, was referred to me by Dr. J. Newton on April 4th, 1900 The patient had been a hard-working man who had lived carefully and indulged in no excesses. He had not used tobacco or alcohol. He had typhoid fever 20 years previously. His mother died from heart trouble at the age of 63 years. Two brothers had died from heart trouble at the ages of 30 and 40 years respectively. Two weeks before the onset of the present illness he had had a great deal of extra work and worry. On Nov. 14th, 1899, while walking to his place of business he felt faint, continued to walk, though slowly, and had no pain. He went to his office, walked upstairs, chatted with his foreman, then started home quietly. He felt very faint and excessively weak and was breathing very slowly. When he got home he was very pale, the left foot was particularly cold, and the left hand was very pale. He had no pain. His pulse became exceedingly slow—down to 38 and even lower. From this time on he was in bed for two months and had constantly recurring attacks of great pallor and coldness with cardiac weakness and slow pulse. During this time he had two fainting attacks in which he got very pale and cold. The heart's action gradually strengthened and he was able to get up and to move about the room. He had since then gradually improved but had had to be very careful and to go very slowly. When last seen he complained of a remarkable tickling and feeling of numbness in the left hand and the left foot, with a sensation of pulsation in the fingers. He was a very healthy-looking man, of good colour, with a good complexion. The eyes were clear; there was slight arcus in the left. The pulse was 72 and regular; the tension was plus; the artery was distinctly sclerotic. The apex beat was not visible; there was no increase in the area of transverse cardiac dulness. At the apex both sounds were clear, the first being loud and ringing. The aortic second sound was not accentuated. Altogether he seemed remarkably well and it was difficult to believe that he had had such a serious cardiac attack only a few months before.

CASE 4. *Attacks of transient vertigo with permanent slow pulse; syncopal attacks; cardiac* [illegible] *œdema and enlargement of the li*[illegible] *persistence of the bradycardia; sudden death.*—The patient was a robust, healthy-looking man, aged 61 years, of good habits and good family history. Except mental overwork and the stress and strain associated there were none of the factors leading to arterio-sclerosis. When about 35 years of age he had severe burns of both hands and the face which had been long in healing. Many members of his family had a pulse-rate of about 60. In the spring of 1899 I saw him during convalescence from an attack of bronchitis and was then impressed with the feebleness of the heart sounds; the pulse was firm and full, not specially slow. In the autumn of the same year he had an attack of syncope and it was then noticed that the pulse was slow. He had had transient attacks of vertigo. Early in the spring of 1900 he had another very severe attack of syncope in Philadelphia with prolonged collapse and great feebleness of the heart. He recovered rapidly, but the pulse remained at about 45 In the summer he became very neurasthenic and was unable to stand slight noises and had a distressing feeling of tension in the head. In July, August, and September there were much flatulency and gastro-intestinal disturbance and on exertion a tendency to fainting. There were râles at the bases of the lungs, slight cough, swelling of the liver, and signs of cardiac insufficiency. It was impossible to feel the apex beat, the area of transverse dulness was increased, the sounds were muffled, and there was a soft apex bruit. He was under the care of Dr. Holford Walker of Toronto who had the advantage of the counsel of Dr. McPheadan and of Dr. Musser of Philadelphia. I also saw the patient early in August. Gradually the heart grew stronger but without any change in the pulse-rate, which was constantly between 30 and 40. On no occasion did I find a "coupled rhythm." From October, 1900, to January, 1902, he improved steadily and was able to take long walks and to get back much of his accustomed vigour. On the morning of Feb. 5th, while getting out of bed, he complained of not feeling very well, was nauseated, and fell back in the bed and died in a few moments.

CASE 5. *Fainting "spells" with slow pulse; slight arterio-sclerosis; epileptiform attacks; remarkable discrepancy between the heart and pulse rate; death in an attack.*—A man, aged 56 years, a farmer, was admitted to hospital on May 15th, 1900. He complained of dyspepsia and a nervous affection. There was nothing of any moment in his family history. When eight years old he had typhoid fever; as a youth he had malaria and at the age of 21 years he had measles. Twenty-five years before he had an attack of gravel. He had never had any venereal disease. His habits had been good. He used neither alcohol nor tobacco. He had been a large eater. Until five years previously he was a shoemaker. In August, 1899, he had two fainting "spells" which lasted for about 10 or 15 minutes. In November he began to notice that after exertion there was a feeling of suffocation. He had had to be extremely careful in his diet; if he took too much food or very indigestible articles he would feel sick at the stomach or everything would grow dim and misty before his eyes. He had had in all four severe fainting attacks, in each of which he was unconscious for at least ten minutes. He had had many of the mild, slight attacks. The patient was a fairly well-nourished, well-built man; the mucous membranes were a little anæmic. The tongue was coated. There were no tophi. Dorsal decubitus; there were no cyanosis and no arcus; the pupils were equal and normal. The pulse was of good volume, of about normal tension, regular, and 28 to the minute; the vessel wall was distinctly felt but was not greatly sclerosed He had a moderate grade of funnel breast; the expansion of the chest was good; the lungs were clear throughout. The point of the maximum impulse of the heart was seen and felt in the fourth interspace, 10 centimetres from the middle line and one centimetre inside the nipple line; there was no thrill. Absolute dulness began on the fourth rib and extended from the right sternal border to the point of maximum impulse in the fourth interspace. There was a loud well-marked first sound, with which there was a soft systolic bruit, traceable as far out as the anterior axillary line. The second sound was well heard and clear. Between the clearly heard heart beats at times there was a faint systolic sound heard after the first and separated from the next by a long interval. This abortive character of the alternate heart beat, "coupled rhythm," was noted on admission At the aortic area the heart sounds were enfeebled and there was a soft systolic murmur The second sound was not accentuated The abdomen looked natural and there was no tenderness on palpation The border of the liver was not palpable, the spleen was not enlarged. There was no œdema of the legs or feet

The case is of sufficient interest to give in some detail On May 16th the patient felt dizzy and at 4 P M he suddenly became very pale and fainted, remaining unconscious for ten minutes The pulse fell to 15 beats per minute Between 4 and 8 P M he had four such attacks, the pulse varying from 15 to 20 beats per minute There was sweating with each attack After the last attack of syncope he vomited The night nurse reported that on several occasions the pulse was as low as 15 beats He slept comfortably and in the morning seemed all right On the 17th, at the visit at 9 A M, I found the patient with a pulse rate of 18 Both sounds had a very normal character at the apex The systolic bruit had the greatest intensity over the body of the heart The percussion note was clear over the manubrium There was no tracheal tugging On the 19th, while making the morning visit, I saw the patient in two attacks, each of which lasted about half a minute The eyes were turned to the left and became fixed, the muscles of the face twitched and the hands twitched slightly It resembled a slight epileptic attack The pulse at the wrist was 12, and the cardiac impulses corresponding to them were strong and easily seen In the jugular veins there were fluttering systolic impulses, quite well defined, but difficult to count, about 120 to the minute On careful inspection of the cardiac area there were seen in the fourth and fifth interspaces small, regular, systolic impulses, exactly 100 to the minute Corresponding to these there could be heard faint systolic sounds at the same rate During the night the patient had a severe attack of vomiting and had frequent syncopal attacks Dr Futcher noted that while the pulse was beating at 12 to the minute auscultation over the heart gave 143 feeble beats to the minute, each eleventh or twelfth beat being forcible, with a loud first sound, and corresponding to the one recorded in the radials On the 20th the patient had some hiccough and at midnight there was typical Cheyne Stokes breathing The heart could be seen beating at 95 to the minute but the pulse was only 19 at the wrist On the 23rd the patient had been better for the past two or three days The pulse had been at about 20 at the wrist and 84 at the heart On the 26th the patient had a persistent pallor, the pupils were small and equal, the pulse was full, 19 to the minute at the wrist and 74 at the heart On the 29th at the time of the visit the pulse was 28 at the wrist The small beats were not visible at the point of maximum cardiac impulse, where the impulses corresponded with the pulse at the wrist, but on auscultation between each of the forcible impulses, which shook the whole front of the chest, there was heard a little, soft, faint, systolic sound, which was not expressed at the apex as a visible or palpable impulse and was not felt at the wrist The pulsations in the jugular vein were very evident but it could not be determined if they corresponded with the total number of ventricular beats At 9.30 P M the patient had an attack of unconsciousness lasting for several minutes, followed by dyspnœa and afterwards Cheyne Stokes breathing On the 30th, at 10 A M, while the nurse was giving him his bed bath he suddenly vomited and immediately afterwards became perfectly rigid and unconscious and cyanosed Before chloroform could be administered the muscles relaxed, the patient gave a few gasps at rather long intervals, and died without regaining consciousness During the attack the pulse was not perceptible at the wrist Artificial respiration was performed without any result There was a slight trace of albumin in the urine and there were a few hyaline and granular casts There was no necropsy

Another case of the same intensity may be referred to On May 13th, 1902, I saw in the afternoon at the Union Protestant Infirmary, with Dr Hamburger, a man, aged 45 years, who illustrated all the symptoms of this severe type of the Stokes Adams disease He was a stout, healthy looking man. He shook hands with me as I went in and then gradually closed his eyes in an apathetic way The face and general surface of the skin were a little suffused The pulse was 20 to the minute, there was slight sclerosis of the artery, no special increase in tension was present. There were no intermediate beats of the radial pulse He was rather stout and the apex beat was not easily visible, but the slow heart beats were palpable Intermediate small beats could neither be seen nor felt There was considerable increase in the transverse area of cardiac flatness In the neck the visible pulsation of the carotids was very plain, 20 to the minute, and there were in the suprasternal notch and just along the sterno cleido muscles on either side two or three tremulous venous impulses not so localised as in Cases 5 and 8 On auscultation at the apex both the first and second sounds were well heard With the first there was a rather rough grating murmur There were no intermediate sounds audible. Above the fourth costal cartilage, particularly at the midsternum, Dr Hamburger had noted between the sounds one or two distant soft sounds These I, too, could catch with distinctness Just after we had finished the examination the patient had in succession two epileptiform paroxysms The onset could be told at once as the beat of the heart stopped and could not be felt at the wrist or heard at the heart for from 15 to 20 and even as long as 35 seconds The convulsion was a general tremulousness, the face became slightly cyanotic, the breath was held, the eyes twitched and rolled up, and the muscles of the face twitched The paroxysms lasted for a few seconds only He came out of them very quickly and the face flushed with great rapidity and he seemed a little dazed He had as many as 150 of such attacks in the 24 hours The patient recovered from the serious condition and returned to his home in Washington A few months later he died during an attack

CASE 6 *Typical pseudo apoplectic attacks as described by Stokes, slow pulse, in some attacks convulsions, duration more than ten years* —While attending the meeting of the British Medical Association at Montreal in 1897 I saw at a club an old friend, a man aged about 60 years, who consulted me casually about distressing attacks of transient vertigo and others of a more severe nature in which he lost consciousness completely During the attacks he said that his pulse sank to 20 or even lower He said to me, "It is not at all improbable that I may have an attack at some time while you are in the club and I will tell the head waiter to notify you" On the following day, while I was at dinner, I was called hurriedly to the secretary's office and there I found my friend in an attack He had fallen unconscious, was breathing very heavily, almost stertorously, and had a very flushed face I thought at once that it was really an apoplectic stroke The pulse was very slow and very full, about 20 to the minute The arteries were very sclerotic The heart's action was very forcible and I could not hear with the unaided ear any intermediate beats or a murmur So alarming did I think his condition that I said to his servant that I thought it might be well to send for his physician and to have him bled, to which he replied that this was an ordinary attack, that he had seen him in many quite as severe, and that he rallied in the course of from 15 or 30 minutes I returned in the course of half an hour and found him up, feeling a little dazed and heavy in the head but quite himself In some of the attacks he stated that he had convulsions On March 3rd of the following year he wrote to me that he had been very much better He stated that he had had the fainting attacks and the slow pulse for many years Dr James Stewart, under whose care he was, told me that his attacks were often of the character of *petit mal* and were sometimes followed by motor aphasia, mainly of nouns The lowest pulse rate he had ever found was 21, but it had been as low as 18 He died during an attack The trouble had lasted for fully ten years He had painful neuromata along the extensor surface of the left arm and two in the left shoulder There was a curious relationship between the pain in these and the pulse rate, the slower the pulse the greater was the pain

II —SENILE CASES.

Not infrequently old men have bradycardia with attacks of vertigo, or of fainting or even of prolonged unconsciousness There may be in addition cardiac dyspnœa and Cheyne Stokes breathing The cases are more common, I think, than any description in the literature would lead one to suppose, particularly the incomplete forms, *forme fruste*, with vertigo

CASE 7 *Slow pulse, syncopal attacks, arthritis, possibly gout, pericarditis, death* —On Jan 16th, 1899, I saw, with Dr Hemmeter, a man, aged 72 years The patient, a very healthy man, had lived an active life, had been a hearty eater, and had been "fond of a glass of beer" He had had several attacks of arthritis, once or twice in his big toe During the past three years it had been noticed that his pulse was very slow, down to between 50 and 60, and he had had three syncopal attacks with pronounced bradycardia. In one of these he had fallen when at stool and was unconscious for some time, with a pulse-rate of 40. When I saw him he had slight arthritis, a temperature of 102°F., and a pulse of 56, full in volume. The vessel wall was moderately sclerosed. The heart sounds were clear. On the 18th I saw him again. There was then a very loud to-and-fro pericardial friction murmur. His temperature had kept up, the joint symptoms were better, but he evidently was not so well. The amount of urine was reduced and there were much albumin and numerous tube casts. He became very much worse during the next three days, became unconscious, Cheyne-Stokes breathing developed, and he died on the morning of the 23rd. There was no post-mortem examination.

CASE 8. *Attacks of vertigo and sudden weakness; slow pulse; arterio-sclerosis; sudden death.*—The patient, a medical man, aged 70 years, was seen in March, 1900. He had always been a strong, robust man; he had never been ill in his life and was unusually well and strong. He had been a devoted cigarette smoker for 40 years. He was not a heavy eater; he had drunk during and after the War of Secession, but had been a temperate man for 26 years. He had been gouty at times. He was a fairly hard worker. On Feb. 10th he had a "giddy spell" and felt a sudden weakness as though he wanted to lie down but did not faint. The attack lasted for an hour or two. He then noticed that his pulse was slow, only 40 to the minute. It did not reach the normal for a couple of days. His usual pulse had been from 72 to 76. He did not feel well for two days. Ten days later he had a second attack, felt giddy, and noticed that his pulse was again low and that it had remained low, once being as low as 38, occasionally rising to 42 and 44. When quiet he was comfortable. He staggered a little when he first got up. He had no pain about the heart. The pulse in the sitting posture after rest and quiet was just 40. There was moderate sclerosis of the arteries. The apex beat was diffusely visible just below the nipple. The beats at the apex were 40; there were no abortive heart systoles. There was an apex systolic bruit, not obliterating the first sound, and very faint at the aortic cartilage. No flatness was manifest over the manubrium. In the right side of the neck there was a pulse in the jugular vein which occurred in groups of three and which was twice as rapid as the pulse in the temporals. It looked just like a wavy venous impulse and was 80 to the minute. I saw this patient again twice. He improved for a time after the use of tobacco and the pulse-rate rose to 55. He had a return of the "sinking" attacks with bradycardia and I heard of his death during an attack in April, 1903.

It is remarkable for how long bradycardia and occasional fainting attacks may persist. In the following case the patient claimed that he had had a slow pulse for 30 years and that he had occasional fainting attacks.

CASE 9. *Stokes-Adams disease; slow pulse; syncope with anginal attack; cardiac dyspnœa; sudden death.*—The patient, a man, aged 74 years, was seen with Dr. McDowell, complaining of debility, with attacks of shortness of breath and palpitation. He was a thin, spare man and had a good colour. He had had a very healthy life without serious illnesses. Thirty years previously his son, at the time aged 12 years, had a fall and after feeling his pulse he felt his own and found that it was only 50 per minute. He consulted a physician who told him that his condition was serious and that he would not live long. He thought that he had had a slow pulse ever since until lately. For many years he had been subject to fainting attacks on extra exertion or on great mental emotion, but they had never been serious. Five years before, on the occasion of the fiftieth anniversary of his ordination, he preached and at the conclusion of his sermon he was seized with a pain of terrible severity in the region of the heart and down both arms. In the arms the pain was as intense and severe as the sharpest toothache. He was very faint and lost consciousness. He broke out into a profuse perspiration and the attack ended with severe diarrhœa. His pulse was very slow and three days after the attack the medical attendant said that his pulse was 38. Since that date he had not had any fainting attacks. He had felt on many occasions palpitation of the heart and irregularity and he had known that his pulse had been below 50. At night he would sometimes be aroused if he lay on the left side by a sudden sharp pain, as if something had grasped the heart. Within the past year he had had certain additional features. His pulse had become more rapid, having risen to above 70. He had had attacks of cardiac dyspnœa at night and was short of breath on exertion. That summer at the seaside he preached, took a great deal of interest in church matters, and seemed to have overtaxed his strength. He had become much more feeble. The patient's colour was good; there was no swelling of the feet; no arcus was present. The radials were stiff, with no calcification. The apex beat was in and just outside the nipple line. There was a soft systolic murmur and along the left sternal border a soft aortic diastolic which was heard only when the breath was held. Both sounds were rather feeble at the base. There was no tenderness over the course of the aorta. I saw this patient again with Dr. McDowell on Oct. 13th. He had been steadily failing, had much less ability to get about, and much shortness of breath, particularly at night. For the past two or three days he had been worse. On the previous evening he had an unusually severe attack of cardiac asthma and one attack was associated with a good deal of pain. I saw him at 5.30 in the afternoon. He was resting quietly, breathing easily. His pulse was 90 and of very good volume; there was no special tension. There was a soft apex systolic murmur, as at the previous examination. There was no gallop rhythm. His cardio-vascular condition seeemed to be extremely good. He was rather dull, did not care to be disturbed, and complained of feelings of great prostration and weakness. At 12.30 that night he died suddenly without awaking.

CASE 10. *Attacks of dyspnœa; slow pulse; two attacks of loss of consciousness; arterio-sclerosis; hypertrophy of the left ventricle.*—The patient, a man, aged 65 years, was seen on Dec. 14th, 1896, complaining of dyspnœa. On entering the room the patient was so short of breath that he had to wait several minutes before he could say what was the matter. With the exception of dyspepsia, which he had had at intervals for 30 years, he had been a very healthy man. He had not used alcohol or tobacco and had not had syphilis. He had diphtheria 10 or 12 years ago; he had not had rheumatic fever or gout. He had worked hard and recently had had business troubles and cares. For the past two or three months he had been getting short of breath, particularly on exertion. After proceeding thus far in the history I felt his pulse and was surprised to find it very slow, 40 to the minute. I then asked him about attacks of unconsciousness, of which he had made no mention, and got a history of two very remarkable seizures. In June, 1895, in Washington, after a couple of days of anxious business, he returned home one Thursday and just after dinner had a fainting attack. He did not know how long it lasted, but his family was very much alarmed and sent for a medical man; he was "off his head" for some time after the attack and talked foolishly. He was not able to leave the house for ten days. He had a second attack in June of this year. He was in the Custom House attending to some business and fell in a faint. He was unconscious for more than 20 minutes and was a good deal dazed after coming to. These were the only two attacks he had had. The patient was a tall man, with iron-grey hair and beard; he talked very deliberately and the expression was rather heavy and dull. The pulse when first counted was 40 per minute, full, slow, incompressible, anastomotic; the vessel wall was considerably thickened. The apex beat was in the fifth interspace, just below and a little outside the nipple line, forcible and punctuate. There was no thrill. On palpation in the second right interspace and second right costal cartilage there was to be felt an unusually loud diastolic snap. The limit of cardiac flatness was on the fourth rib at the right sternal margin and just at the apex beat. At the apex both sounds were heard, with the first a soft systolic murmur. At the second right interspace there were a soft systolic murmur and a second sound of most unusual and remarkable intensity, without any amphoric quality, sometimes single, sometimes distinctly reduplicated. I saw the patient again on June 27th, 1897. He had been much better; the slow pulse was not permanent but at times it was as low as 40.

III.—CASES OF SLOW PULSE WITH OCCASIONAL SYNCOPAL ATTACKS IN YOUNGER, HEALTHY MEN.

CASE 11. *Attacks of fainting for five years; slow pulse; arterio-sclerosis; good general health; appendicitis; operation; recovery.*—The patient, a man, aged 40 years, was seen on May 20th, 1901, complaining of attacks in which he fell and lost consciousness. The patient had been a healthy man, very active and vigorous. For many years he had had at times rheumatic pains. After an attack of pneumonia, nearly

20 years previously, it was noticed that he had a slow pulse but he did not remember the rate. Five years previously he had his first attack of fainting. He felt nauseated and faint but recovered very rapidly. A few days later he had a second attack. During that summer he had a good many and he had had them at intervals ever since. He felt in them as though everything stopped and then he would fall. There were no movements in the attacks. He was more apt to have them when he was tired or after any special excitement. In the attacks he either fainted away completely or could with difficulty keep himself from fainting by [illegible] tion. The heart was not enlarged. The sounds were clear; the aortic second sound was a little accentuated. The radials were distinctly sclerotic. The patient was admitted to the hospital, where he had an attack of appendicitis, of which he had had several previously, and he was transferred to the surgical side for operation. Very many observations were made upon his pulse and heart. The rate was usually about 50. The day before operation it was 40; just after the operation it rose to 90. There was no "coupled rhythm." He remained in hospital until June 3rd, during which time the range of the pulse was from 40 to 65. There was no hemi-systole. On the occasion of his visit to me I made him go out and walk briskly and when he came in his pulse rose to 110. He was a very healthy, active man and said that he had got accustomed to the fainting attacks

CASE 12. *Syphilis at 23 years of age; for six months recurring attacks of vertigo; two attacks of great severity; permanent slow pulse of 28.*—A robust, healthy-looking man, [illegible] a moment or two as though he was about to fall, but quickly gained control without struggling or swaying; while he was undressing he flushed a moment and said, "There, that was a slight one." He had many of these, often three or four in the day, and any excitement was apt to induce them. Twice he had had more serious attacks in which he had become faint and had had to hold on to something to keep from falling. He did not lose consciousness but felt a sensation of "utter goneness," as he expressed it, and then broke out into a profuse sweat. There were a sensation, too, of stuffiness in the throat and a wheezing in the tubes. Shortly after his attack of faintness the medical attendant noticed that his pulse was very slow and it had ranged ever since from 28 to 36. He had no abnormal sensations about the heart itself. He felt well and was vigorous but he had become much alarmed since the onset of the severer attacks. He had been a vigorous, muscular man; he had used much tobacco and alcohol in moderation. He had had syphilis but was thoroughly treated for two years. I dictated the following note:—"Healthy-looking man of good colour. Pulse 28, full; radials easily felt. Visible pulsation in cardials and a fluttering venous impulse difficult to count but about double the rate in the carotid. Apex beat not visible, not palpable; no increase in the area of transverse cardiac flatness Both sounds audible at apex; no intervening beat to be heard at apex or base. Aortic second sound accentuated. After exertion the pulse-rate rose to 40. Examination of the other organs was negative."

I have permission to quote the following remarkable description of his own case by an army officer who has consulted me by letter on several occasions and who has been under the care of Dr. R. H. Babcock and Dr. E. F. Wells of Chicago:—

January 5th, 1903

DEAR SIR,—While in Germany in the summer and fall of 1900, taking a course of the Schott bath treatment for an affection of the heart, I took [illegible] sult several German [illegible] n was Professor Dr [illegible] ses of the Circulatory [illegible] n my return to this [illegible] This I was unable to [illegible] me to Europe upon [illegible] e West I have been [illegible] July last under the observation and care of Dr. Robert H. Babcock of Chicago It was he who in April of 1902 first informed me that mine was a case of Stokes-Adams disease, although the original examination of me by Dr. Babcock had been made as early as October, 1899. Dr. Babcock informed me that he was inclined to make that diagnosis after mature consideration [illegible] n appearing in the *Zeitschrift für* [illegible] r the article on the Stokes-Adams [illegible] *utsches Archiv für Klinische Medicin,* [illegible]

Personally I have made a thorough study of my case, so far as a lay [illegible] d reported entirely sound by [illegible] s *that that report was correct,* and the policy was issued [illegible] One [illegible] tly at [illegible] se examinations such addi- [illegible] were also reported. When I [illegible] six months afterwards) my [illegible] was apparently well. It is now, and [illegible] The usual [illegible] e cold [illegible] y bed [illegible] d my [illegible] I have begun to gain since I resumed a general diet about four weeks ago. There is a marked systolic murmur over the aortic and mitral areas, both of which murmurs become very much less marked when heart action is normal. Careful auscultation reveals usually two small heart contractions of which the latter produces the radial pulse. The former (imperfect) contraction does not produce a pulse-wave either in carotids or in the radials. None of the ordinary secondary symptoms of valvular disease of the heart, such as dyspnœa, dropsy, cyanosis, &c, are present in my case.

Yours, &c,

——

DIAGNOSIS.

The severe form (Cases 2 to 6) presents such a clear-cut picture that there is no question as to the nature of the trouble The senile form is also very well marked. The post-febrile variety may be very severe but is as a rule more hopeful and recovery, as in Schuster's case, may follow after weeks of recurring attacks The toxic forms of bradycardia are sometimes associated with vertigo but rarely with syncope or epilepsy The tobacco bradycardia may sometimes cause alarm. I was consulted on Jan. 7th, 1896, by a man, aged 48 years, who said that he had had heart disease for three years. He had smoked and chewed from boyhood. He complained of irregular action of the heart and a dull aching sensation in the chest. He then had attacks in which the pulse fell to 45 and 48 and which caused him great alarm. He had transient vertigo but never syncope. There were no signs of heart disease. I urged him to stop using tobacco. Within three months the pulse-rate was above 70. I have seen him on several occasions since and he has remained quite well.

A difficulty may arise in the diagnosis of the neurotic cases in women or in young men. Dr. Edes's first case illustrates the intensity of this form. Aggravated neurasthenia may be associated with bradycardia and vertigo of which the following cases may be given in illustration.

CASE 13.—A man, aged 44 years, was admitted to the Johns Hopkins Hospital on Oct. 29th, 1899, complaining of pain in the epigastrium, headache, and of swaying of the body while walking. He had used tobacco to excess, both smoking and chewing. He used whisky in moderation. He had not had syphilis but had had gonorrhœa twice. He had led a very active athletic life. Six months before, after severe exertion and exposure [illegible] upwards from the thighs wl [illegible] uncomfortable He worried [illegible] so much difficulty in getting his breath that he thought he had heart disease and was going to die. He stopped work for a few days but on resuming he had a similar attack and complained of a peculiar swaying of the body which he could not control. The patient worked for two months but the swaying and pains in the crown of the head and in the epigastrium compelled him to give up. He was very nervous and complained of flushing, cold feet, and insomnia. He had lived a life of continued "high tension." He was a stout well-built man; the lips and the mucous membranes were of good colour; the tongue was slightly furred. The pupils were equal but not contracted; they reacted well to light and to accommodation. Well-marked dermatographia was present. There was some swaying on standing with the eyes closed and feet together. The pulse was of good volume and normal tension, regular in force and rhythm, but slow, being only 48 to the minute. The point of maximum cardiac impulse was neither visible nor palpable. The sounds were best heard in the fourth interspace nine and a half centimetres from the midsternal line; there was no thrill. The sounds were rather enfeebled at the apex and were clear and of normal relative intensity; they were clear at the base; the aortic second sound was slightly accentuated. There were no abortive beats. According to the patient's wife he had since childhood had an aversion to water, the drinking of which would cause him to have a "smothering" feeling at night. At the onset of the present illness the patient went to bed feeling perfectly well; he woke up in the night with a feeling of being smothered, so he got up and went outside. He was convinced that he was dying and after a time could not walk and had to crawl home. He was put to bed; he went to work as usual on the next morning. One week later he had a similar attack. His wife said that since the onset of the attacks he would often get up at night wringing his hands and in great fear of death, but was usually easily quieted. The patient improved very much after a short stay in the hospital, but the pulse was still slow, from 48 to 50 to the minute.

The following is a still more remarkable instance of a very slow pulse with nervous attacks.

CASE 14.—The patient, a man, aged 26 years, was seen on Oct. 4th, 1901, with Dr. Harry Thomas, complaining of attacks of nervous weakness. The family history was excellent. He had good health as a young man. In January, 1895, he fell about 20 feet, hit his back, and was severely hurt in the muscles of the back; no paralysis followed. He was in bed for three months on account of the pain in the back. This was his first year at college. He got well, except that on cold damp days his back would hurt him. His present trouble came on before the fall, in March, 1894. He had been feeling well and went to bed. In the morning he found that he was "giddy-headed" and everything in the room seemed to be turning round; he felt a little sick at the stomach. When he tried to get up he was very unsteady and if he moved suddenly he would fall; he had to support himself by chairs, &c. There were no ringing in the ears and no vomiting. He became nervous and went back to bed. The pulse sank to 42; there was no fever. The bowels were in good condition; he had a good appetite. He was in bed for three or four weeks. Every time he tried to stand he found that he was so weak that he had to go back to bed. If he did get up his heart would go from 80 to 100. He could not read on account of the headache that it caused. When he did get about he was weak. He improved slowly and in about six weeks was as usual. At the time of the first attack he was working on a farm and had had nothing to disturb him. The second attack was in about a year after his fall. Since then these attacks had recurred from eight to 12 months apart. They had all been of the same character, except that some were longer and some shorter. The shortest one was about three and a half weeks. This was in 1898. The last attack began on the afternoon of August 5th. He was taken with giddiness and vomiting and had to be taken home in a carriage and practically carried upstairs and put to bed. It was not weakness at first that kept him from walking but giddiness. The temperature was normal and remained so. On the next afternoon the pulse was 48. He was in bed for eight days and then went to his home 28 miles away with assistance. He had stayed more or less in bed every day since. The giddiness had lasted much longer in this attack than usual. He tried to go back to work a week before but was not strong enough. In going about the pulse increased to 93. The pulse when he was well was about 74 when he was going about. He was a healthy, robust-looking fellow. The pupils were active. The radials were soft; there was no sclerosis. The pulse was 80. The chest was rather long and narrow. The apex beat was in the fifth interspace, well inside the nipple line. There was no increase in the area of cardiac flatness. The aorta was not palpable in the sternal notch. The sounds at the apex and base were loud and clear; the aortic second sound was a little accentuated. In the carotids and the subclavians there was visible, possibly neurotic, throbbing. Marked and quick vaso-motor reaction was present.

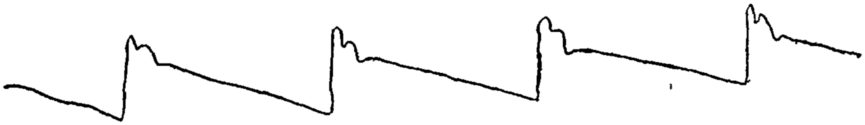
These are certainly very remarkable attacks. They rather suggest a form of migraine and yet the ears were normal and the patient had no ringing in the ears with the attacks. He gave one the impression of being an excessively nervous man. On a course of hydrotherapy he had improved very much. Dehio suggests the use of atropia to determine in a given case whether the bradycardia is due to changes in the heart itself or in the nervous centres. In normal persons small doses paralyse the peripheral ends of the vagi and the action of the heart is hastened. In old people, in chronic myocarditis, and in one case of Stokes-Adams disease Dehio states that this effect did not follow. I do not know if this observation has been confirmed.

CARDIO-VASCULAR FEATURES.

All of the patients except Case 1 with an acute post-febrile attack presented arterio-sclerosis; in Cases 5, 11, and 12 it was of moderate grade. In no case was the heart greatly enlarged. In Cases 2, 4, 5, and 10 there was a soft mitral systolic murmur; in Case 9 an aortic diastolic murmur was present. In Cases 4 and 5 the sounds were weak and muffled. In the only necropsy of the series (Case 2) the arteries were found to be sclerotic, the root of the aorta and the coronary arteries were calcified, and the left ventricle was hypertrophied. The condition is not associated with the ordinary forms of valvular lesions, as in a majority of the cases the valves are normal, the heart is not enlarged, and the sounds are clear. In Dr. Edes's series collected from the literature in 31 of the 35 cases in which a necropsy was held there was a definite statement as to the heart and arteries and in 26 there were sclerotic and myocardial changes. Certain special features may be considered.

True bradycardia.—One of the first lessons a student has to learn in the wards is that infrequent slow pulse and bradycardia are not the same and that with an infrequent pulse there may be a normal or an increased number of heart beats. In lesions of the mitral valve, in chronic myocarditis, and as a result of the action of digitalis, the radial pulse may be 50 or even 40 and the heart beats exactly double, the intervening small beat (often visible at the apex in thin-chested persons and audible as a faint systolic sound) not reaching the finger at the wrist. True bradycardia with heart beats and pulse beats of equal number occurred in most of the cases, only in Cases 5, 8, and 12 did it alternate with false bradycardia. In eight cases the bradycardia was a permanent condition; in one case the beats fell to 12 per minute; in Case 9 the slow pulse had been observed for 30 years, in Case 2 for six years, and in Case 6 for at least ten years. In Cases 1 and 2 the slow pulse was not permanent but only occurred during the attacks. In Dr. Hamburger's case with a heart-rate at 20 prior to a convulsive attack I counted intervals of 20, 30, and once 35 seconds in which there was no heart beat to be seen, heard, or felt. The pulse in true bradycardia is usually full, strong, and regular. This last feature is marked and is apt to deceive the inexperienced as it may be present with intervening abortive systoles—the "coupled rhythm." There may be a very strong pulse with an indistinct cardiac impulse and feeble sounds, or just the opposite. The infrequency in true bradycardia seems to be due to prolongation of the diastole; the systole as a rule is sharp and quick. The tracing which is here presented shows this very clearly. By far the best sphygmogram I have seen is the one here given which was taken by Dr. Wells of Chicago. It is a normal tracing, except in the extraordinary prolongation of the line of descent, the period of diastole.

False bradycardia.—Stokes noted in his patient that the pulse-rate and the heart-rate were not the same and that there were semi-beats of the heart. In three of my series these abortive beats were present. They may not be evident at the radials or in the carotids where the pulsations may be in orderly sequence and of exactly equal size—so that at the wrist there is no indication whatever of arrhythmia; even the sphygmographic tracing may not show the interpolated beats. They may sometimes be seen and felt at the apex as in Case 5; more often they may be heard with distinctness. The number of abortive systoles varies; usually they are alternate and in orderly sequence, so that with a pulse of 40 at the wrist 80 heart beats may be seen and 80 first sounds may be heard—the "coupled rhythm" In the severe attacks with very infrequent pulse there may be a number of abortive beats In Case 5 in which this feature was studied with great care there were remarkable variations On one occasion, with a pulse rate at the wrist of 12, the heart beats were 100, on another they were 143 On May 26th the pulse was 19 to the minute at the wrist, with 74 palpable, visible, and audible cardiac beats On the 29th the pulse rate and heart-rate were the same (28), no intervening beats could be seen, but on auscultation there were feeble, only just audible, systolic sounds intervening between the forcible thumping pulsations which shook the whole chest



Pulse-tracing of the patient whose description of his own case is given above Pulse-rate at 40

The question has been raised whether in all cases there are not these abortive beats, too feeble to be seen, felt, or heard Case 5 was a very favourable one in which to study this problem All the abortive systoles were usually visible on the thin chest wall and palpable One day with the pulse at 28 and the same apparently at the heart and the wrist and without any visible or palpable abortive systoles such as were usually present, on auscultation one could hear distinctly soft systolic sounds intervening between the loud booming shocks In other cases I have listened with the greatest care but in vain for these abortive sounds

The "heart block," or independent auricular systole without corresponding ventricular contractions —Stokes noted on the readmission of his patient a new symptom—a remarkable pulsation in the right jugular vein, more than double the rate of the ventricular contractions This feature has been studied by Chauveau, by Quincke, by His, jun, and others, who are of opinion that the jugular pulsations correspond to independent auricular contractions which are not propagated to the ventricles—a state of "heart-block," as Gaskell terms it In Case 5 the jugular pulsations never corresponded in number with the carotid pulsations or with the total number of ventricular beats Cardiac, radial, and jugular tracings were taken simultaneously, from which, unfortunately, nothing very definite could be determined

Jacquet has recently called in question the existence of these independent auricular contractions,[8] the existence of which his tracings do not support It is quite possible that there are ventricular contractions too feeble to be heard and too feeble to open the sigmoid valves, yet which might in a dilated heart cause a pulse wave in the right jugular vein In Case 5 as a rule the interpolated beats were palpable, visible, and audible, but they continued to be *heard* after they had ceased to be felt or seen, and still feebler contractions might cause no sound and yet transmit a wave to the veins through an insufficient tricuspid valve We cannot dismiss the question of independent auricular contractions as settled In

nite jugular pulsations
s of systole with com

Cardiac arrest —This phenomenon is one of the most remarkable witnessed at the bedside In the case just referred to the apparent stoppage always preceded the slight convulsive attack The eyes were set, the face was flushed at first, then pale, and the patient appeared to be in the article of death. In such circumstances to wait 35 seconds, watch in hand, without a heart beat seems like the final "count-out", but this man, after scores of such attacks, recovered sufficiently to go to his home A precisely similar condition is met with in some cases of angina pectoris It always suggests to me the heart state of fibrillary contraction produced experimentally by the Kronecker puncture

Vaso-motor changes —As in angina pectoris the vaso motor system is profoundly involved in the severe attacks, as shown by the pallor, the sweating, and the vomiting, and in some cases by the marked paræsthesia, the numbness, and the tingling

NERVOUS FEATURES.

It is for these the patient seeks relief, naturally much alarmed Four forms of attack occur —

Vertigo —While walking in the streets or engaged in conversation the patient feels giddy and staggers or may fall unless he catches hold of something As in Case 2, the attack may be of great severity and very distressing, incapacitating the patient The attacks may precede for years the onset of severer forms In very old men with a permanent slow pulse this may be the only manifestation It is a well-recognised and common symptom of arterio sclerosis

Syncope —Much more alarming are the fainting attacks with complete loss of consciousness. Without warning the patient becomes pale and may fall instantly in a deep faint, with feeble, imperceptible pulse and the general features of cardio-vascular collapse. The respirations are shallow, a clammy sweat breaks out, and in severe attacks death may seem imminent, indeed, the patient may pass away without recovering consciousness As a rule the attack does not last more than a few minutes Many attacks may occur in a day and, as in Case 2, they may alternate with vertigo They may resemble in character *petit mal* Syncope is the most frequent of the severe nervous symptoms and occurred in eight of my cases

Pseudo apoplexy —The patient falls in a deep coma, with loud stertorous breathing, deeply congested face, and all the features of an apoplectic stroke Both Adams and Stokes describe the condition most accurately and the latter comments on the remarkable circumstance that there is no consecutive paralysis, as after an ordinary stroke There are rarely convulsive movements and in four or five minutes consciousness is restored and the patient may get up and go about his work (Case 6) An extraordinary feature is the frequency of the attacks as noted by Adams and Stokes In Case 6 they had recurred for many years and had been associated with transient attacks of motor aphasia, such as are met with not infrequently in advanced arterio-sclerosis.

Epileptic seizures —As mentioned, the transient vertigo and syncope may resemble *petit mal* The convulsive attacks are either slight spasms of the muscles of the face and hands with the loss of consciousness, as in Case 5, or more rarely they may be more general, resembling true epilepsy In Case 5 and in Dr Hamburger's case the convulsive attacks were very frequent In the latter we could tell at once when the attack was coming on The pulse would stop for 20 or more seconds, the face flushed, the breath was held, the eyes rolled up and twitching of the face and hands began Sometimes the attacks may not last for more than a few seconds and the patient may go on with a conversation, even a 100 or more of such attacks may occur in a day.

PULMONARY FEATURES

The cases present the respiratory symptoms so often met with in chronic myocarditis Attacks of cardiac asthma are common, occurring chiefly at night (Case 9) These may be the features of angina sine dolore, the distress, the pallor, the sweating, the shortness of breath, or the state called by Goodhart acute emphysema, with universal wheezing, the *Lungen-starheit* and *Lungenschwellung* of von Basch—which, I take it, is nothing more than acute œdema of the lungs Cheyne Stokes breathing is more common and was met with in four cases of my series In the pseudo-apoplectic attacks the stertor, with deep laboured respiration and expiratory puffing of the cheeks, may have all the intensity of the genuine stroke Prior to the attacks of epilepsy there may be transient arrest of respiration with flushing of the face

PATHOLOGY

It is by no means easy to discuss intelligently the pathology of these remarkable attacks We have two great groups of bradycardia—the one associated with lesions in the heart itself, the other with disturbances in the nervous respiration-rate was from 20 to 24 per minute. The tongue was furred and there were complete anorexia, slight headache, a good deal of pain at the back of the neck, and marked mental depression. After the first few days there was some diarrhœa, two or three loose motions being passed daily. On Jan. 1st the blood was examined and the Widal reaction was found to be positive (with a dilution of 1 in 30 complete clumping occurred at the end of half an hour). At this time the disease was regarded as in all probability typhoid fever, especially as the symptoms and the course of the temperature were exceedingly similar to those which had been present at a corresponding period of the illness of another nurse who had died from undoubted enteric fever only a week or two previously. There were, however, no distension of the abdomen, no evidence of enlargement of the spleen, no bronchitis, and no appearance of spots. The symptoms now continued with very little alteration for several weeks, except that the diarrhœa gradually subsided. The temperature rose every evening with great regularity, for the first four days to 104°, then for about a fortnight to 103°, and afterwards to 101° or 102°; it was always normal, or very nearly normal, in the morning, except—as already mentioned—for the first few days. There was never any rigor or shivering. This persistently intermittent type of fever, together with the absence of many of the ordinary symptoms of typhoid fever, gradually rendered the diagnosis less and less probable; but although repeated careful examinations were made no other cause for the fever could be found until at last attention was directed to the condition of the mouth. After the patient had been in bed a week or two she began to complain of dryness and soreness of the lips, gums, and front of the mouth. At first these symptoms were attributed merely to the fever and to the general condition, but as some pyorrhœa alveolaris was found to be present various antiseptic lotions were employed and shortly afterwards the evening rise of temperature began to be distinctly less marked. It was only, however, the long and regular persistence of the fever and the utter inability to find any other cause for it that at last led to the suspicion that the condition of the gums might actually account for the illness. Mr. Roughton was therefore asked to see the patient and as he found that pus exuded on pressure from the sockets of both the upper and lower incisor and canine teeth, particularly around the upper lateral incisors, he advised the extraction of these two teeth. This was done on Jan. 27th and there was a relatively considerable escape of pus afterwards from the sockets; in addition a thorough antiseptic treatment was applied to the gums generally, chiefly by a 1 in 80 solution of carbolic acid. The effect was immediate. The highest temperature on Jan. 27th was 101·4°, next day it only reached 99·8°, and never subsequently rose to 99°. Convalescence was rapid and no special precautions were taken in regard to diet, solid food being given freely as soon as the patient wished for it. She has remained quite well ever since and the pyorrhœa alveolaris has been practically cured by the application of listerine and of a solution of hydrogen peroxide to the gums and teeth and by filling the pockets between the gums and teeth with powdered sulphate of copper. Three more teeth had, however, to be extracted owing to their becoming very loose. On Feb. 10th the blood was again examined and the Widal reaction was found to be negative (with a dilution of 1 in 30 most of the bacilli remained active at the end of half an hour, although a few clumps were seen).

---

[8] Deutsches Archiv für Klinische Medicin, Band lxxii.

In some lectures[1] delivered at the Medical Graduates' College and Polyclinic one of us drew attention to morbid conditions of the mouth as a source of systemic infection. Although not susceptible of logical proof there seems to be little doubt but that the case now recorded is an example of the effects of toxic absorption from suppurating gums. The indefinite nature of the febrile condition, coupled with its rapid disappearance as soon as the gums were adequately treated, seems to point very distinctly to the true nature of the case. The close resemblance of the symptoms in this case to those of typhoid fever is most interesting and suggests to the physician the advisability of carefully examining the condition of the mouth in all obscure febrile conditions and the importance of remembering that the mouth is not only an index of the condition of the alimentary canal, but may be really the *fons et origo mali*. Previous cases have been recorded of a positive Widal reaction in septicæmic and sapræmic conditions.

NOTE ON THE TREATMENT OF CHOREA BY ASPIRIN.

BY R. T. WILLIAMSON, M.D., F.R.C.P. LOND.,
PHYSICIAN TO THE ANCOATS HOSPITAL, MANCHESTER; ASSISTANT LECTURER ON MEDICINE AT OWENS COLLEGE; AND ASSISTANT PHYSICIAN TO THE ROYAL INFIRMARY, MANCHESTER.

I HAVE recently endeavoured to ascertain whether the course of chorea minor can be influenced by treatment with aspirin. I have given the drug in 35 consecutive cases of chorea, in all of which the subjects were out-patients at the Ancoats Hospital and the Manchester Royal Infirmary. They were kept away from school but were not confined to bed. The favourable results obtained cannot therefore be attributed to the influence of rest in bed.

It is not without considerable hesitation that I have ventured to write this note on the treatment of chorea, since the disease is one which has usually a tendency to terminate in recovery in course of time, apart from any medical treatment. In the mild forms of the disease recovery may occur in from six to ten weeks, whilst in other cases the choreic movements may persist for many months, or even a year, or longer. Mild cases will recover without drug treatment. In severe cases we cannot immediately arrest the disease by aspirin or by any drug or form of treatment. When steady and progressive improvement follows medical treatment usually one or two weeks, often a longer time, must elapse before recovery is complete. Bearing these facts in mind the necessity for great caution in drawing conclusions as to the action of drugs will be evident. Notwithstanding these difficulties I believe that aspirin has a distinct beneficial effect in severe forms of chorea.

In the mildest forms of chorea good results often follow treatment by various drugs and may occur even when no drugs are given. In these very mild forms I have seen decided improvement in cases which I have treated simply with five minims of peppermint water three times a day or with very minute doses of quinine (one-quarter of a grain). Hence, though my mild cases have done well on aspirin, I cannot say that the result was due to the drug and that they would not have done well without it, but in the severe and persistent cases I believe that aspirin is of distinct service in diminishing the duration of the affection. Though the drug does not immediately check the choreic movements its administration is usually followed by distinct improvement in six or seven days after a dose of 10 or 15 grains four times a day has been reached. This improvement steadily continues until complete recovery occurs.

All of the 35 out-patients improved when treated with aspirin; the improvement was progressive and complete recovery occurred. When the patient was able to take aspirin well it was never necessary to resort to other drugs because improvement did not occur under the administration of aspirin. Further, I had no necessity to send any of the patients to bed for rest treatment. Though these general statements are in favour of the drug they will not convince readers of THE LANCET of its value and I am aware that I cannot put forward any *conclusive proofs* thereof. To furnish such conclusive proof of the curative action of aspirin it would be necessary to publish the results of treatment in two large series of cases of chorea, the cases in one series being treated with aspirin with better results than those obtained in the second series without the aspirin treatment. All other conditions should, of course, be the same in the two series. It is scarcely necessary to add that such series of observations are for many reasons very difficult to obtain. What has impressed me, however, so much in favour of aspirin is the steady and marked improvement which has often followed its use in severe cases of long duration which have resisted other drugs and methods of treatment. In cases of long duration and in recurring attacks the patients' friends have, on several occasions, been much impressed with the value of the aspirin and on the recurrence of choreic movements at a later date have reminded me of the benefit derived from the drug in the previous attack. I am aware that such statements by the patients' friends are by no means conclusive evidence of the value of any drug; nevertheless they are worthy of mention.

---

[1] Roughton: On Some Morbid Conditions of the Mouth, THE LANCET, Sept. 27th (p. 847) and Oct. 18th (p. 1029) and 25th (p. 1108), 1902.

As regards the administration of the drug I have usually commenced with 10 grains as a powder twice a day in children over seven years of age and rapidly increased up to 10 or 15 grains (according to age) four times a day. In children under seven years of age smaller doses will be necessary. It is, of course, important to watch for toxic symptoms and to diminish the dose or to discontinue the drug if these occur. Toxic symptoms similar to those caused by salicylates (noises in the ears, &c.) do not often occur and most children take the large doses just mentioned without any ill-effects, but occasionally the drug causes gastric irritation or vomiting even in small doses of five grains. These symptoms I have not infrequently noticed in patients receiving the drug from the out-patient room at the Manchester Royal Infirmary but very rarely in patients at the Ancoats Hospital. It is probable that the vomiting is due to some impurity of the drug or to some idiosyncrasy of the patient. It is important that no alkali should be taken just after the aspirin, otherwise the drug is very liable to decompose in the stomach and to produce gastric symptoms. I usually give the powders in water to which a drop of lemon-juice has been added. If in spite of these precautions gastric symptoms and vomiting occur the drug should be discontinued. I have been obliged to discontinue the drug permanently in a few cases on account of sickness, but had not to do so in any of the 35 cases here under consideration. I believe that it is only when the doses already mentioned can be taken well that the drug is likely to be of service. The following are brief abstracts of notes of eight out of the 35 cases.

CASE 1.—The patient was a girl, aged 14 years, who had had two previous attacks of chorea. The present attack had been of four months' duration. The patient had been previously treated as an in-patient (with rest in bed) at a large hospital with very little effect. Aspirin was given (15 grains three times a day); steady and marked improvement occurred. At the end of 24 days there was complete recovery with no recurrence of the symptoms.

CASE 2.—This was a case of chorea of six months' duration in a girl, aged 11 years. She was treated with small doses of liquor arsenicalis for three weeks without any effect. Aspirin was then given. Steady and marked improvement occurred and the patient ceased to attend the hospital. Three months later choreic movements returned. After this second attack of chorea had continued for six weeks the patient was brought to the out-patient room by her mother who reminded me of the rapid improvement which had followed the use of the powders (of aspirin) in the first attack. Aspirin was given, 10 grains three times a day and the dose was increased to 15 grains four times a day. In six days there was distinct improvement; three days later the improvement was more marked and when seen 12 days after the commencement of the aspirin treatment (and seven days after the dose of 15 grains four times a day had been reached) the patient was quite well and the choreic movements had entirely ceased.

CASE 3.—The patient, a girl, aged 12 years, had had repeated attacks of chorea for four years with occasional short intermissions of three or four weeks' duration. She was taken to the out-patient room of the Ancoats Hospital suffering from a severe attack of chorea which had persisted for three months. Aspirin was given with good results and the chorea rapidly subsided. For more than two months she remained quite well. The aspirin was discontinued. Early in 1903 the choreic movements returned and a severe attack of the affection developed. The girl had previously been treated as a hospital patient, but in order that she might have the same powders (of aspirin), and as she was not so poor as most hospital patients, her mother brought her to see me privately. The mother reminded me of the benefit which had been derived from the aspirin previously and requested that her daughter might again have the same treatment, as no other drug which had been tried in her numerous attacks had given her so much relief. Aspirin (10 grains three times a day) was given on Feb. 27th. On March 9th there was a little improvement and the dose was increased to 15 grains four times a day. On March 16th the improvement was decided and on the 28th the chorea was slight. On April 3rd the patient was practically well and she has remained quite well since that date.

CASE 4.—The patient was a girl, aged eight years. The onset of chorea happened about Christmas, 1902, and the symptoms gradually increased until Feb. 5th, 1903, when aspirin was given (10 grains three times a day) and improvement occurred. On Feb. 12th she was much better. The improvement was so marked that she discontinued all treatment. In a short time the choreic movements became much worse and she returned to the out-patient room for further treatment. On the 23rd aspirin (10 grains four times a day) was given. Improvement occurred rapidly and on March 2nd the chorea had entirely disappeared.

CASE 5.—This patient, a girl aged 14 years, had had chorea for two weeks. The movements were very violent. On April 8th aspirin was given (15 grains four times a day). On the 11th there was considerable improvement. On the 15th, one week after the drug was commenced, the choreic movements had almost ceased and on the 29th she was practically well.

CASE 6.—The patient, a girl, aged 13 years, was seen soon after the onset of the chorea. Aspirin was given (10 grains three times a day) and slight improvement occurred but the drug caused sickness and had to be discontinued. Liquor arsenicalis was given in small doses for five days but the choreic movements increased. For three days she was given aspirin but as sickness occurred it was again discontinued and for three days liquor arsenicalis was given. Then on Feb. 15th aspirin was given (15 grains four times a day). The patient was now able to continue this dose and decided improvement was noted on the 26th (five weeks after the onset of the disease). On March 2nd very little choreic movement could be detected. On the 16th the chorea had entirely disappeared.

CASE 7.—The patient was a girl, aged 12 years. The onset of the illness occurred at the end of May, 1903. The patient was treated at a large hospital and kept in bed for two weeks but no improvement resulted. I first saw the case one month after the onset of the affection. The choreic movements were then very marked. Aspirin was given on June 29th (10 grains twice a day) and was increased up to four times a day on July 1st. When seen on the next day the condition was much the same but on the 6th there was marked improvement On the 9th the patient was practically well and by the 13th not the slightest trace of choreic movement could be detected.

CASE 8.—The patient was a boy, aged 15 years. There was a history of chorea 12 months before. The present attack had been of six weeks' duration and no improvement had taken place up to the time the aspirin was given on July 5th (10 grains four times a day). On the 9th and 13th only very slight improvement was noticed, but it was found that the aspirin had not been taken very regularly. The necessity for regularity was pointed out and the drug was continued. On the 20th the boy was practically well.

Amongst these 35 out-patients treated with aspirin there were cases of very long duration in which the symptoms persisted unchanged until this drug was given; decided improvement first occurred under treatment with aspirin and complete recovery followed. Often other methods of treatment had been tried without effect. Also in some severe cases of short duration—i.e., cases seen soon after the onset of the disease—improvement occurred rapidly when the patient was brought well under the influence of aspirin and complete recovery soon followed. From these and other facts already mentioned I do not think that the favourable results of treatment by aspirin can be attributed to lucky coincidences.

Though aspirin cannot be regarded as a specific for chorea, the results obtained by its administration are so favourable as to indicate the great probability of a beneficial action of the drug and it appears desirable that further observations should be made. It is only by very numerous observations that the beneficial action of drug treatment can be established in any affection which has a natural tendency to recovery.

Manchester.

AMPUTATION OF THE LEG UNDER HYPNOTISM.

BY FRANK G. ALDRICH, L.S.A.

IN the belief that the following case will prove of interest to the medical profession I venture to record it. The interest taken in hypnotism in this country is very small and the value of its therapeutic action in suitable is not appreciated. From an experience lasting lungs, liver, kidneys, and spleen were normal and there was not the slightest trace of organic nervous disease. The patient is a man of iron nerves, as may be gathered from the fact that he is a rifle shot of the first order and has won many prizes for shooting. He had suffered from occasional attacks of flatulent dyspepsia and it was to one of these attacks with its concomitant cardiac pain from distension of the diaphragm that I was indebted for an opportunity of observing a case of what I believe to be absolutely physiological bradycardia. I placed the patient on a careful dietary and a course of stomachic bitters with pepsine and the præcordial distress rapidly disappeared and, so far as I am aware, has not returned. He was under my immediate supervision for upwards of six months and I have heard from him at intervals since. The last Indian mail brought me a letter from him informing me that at the time of writing he was in excellent health and free from the præcordial discomfort but that the pulse-rate remains unaltered, so as the patient came under my observation nearly 18 months ago the condition may be safely considered to be permanent.

The case is, of course, not unique, as in addition to the case of Napoleon mentioned above, Roux, Sir William Broadbent and other observers have recorded somewhat similar ones, but it is, I think, sufficiently uncommon, especially in military practice, to merit being placed on record.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CONCERNING THE NATURE OF THE GREEN PIGMENTATION OF THE TISSUES IN CHLOROMA.

BY EDGAR G. TREVITHICK, M.D. CANTAB.,
PHYSICIAN TO THE CHELTENHAM GENERAL HOSPITAL.

IN describing a case of chloroma in THE LANCET of July 18th, 1903, p. 158, I stated that the brilliant green pigmentation of the affected organs faded rapidly after their removal from the body and that I had been unable to find any reagent that would bring back the colour. I now wish to record the observation that when such organs are treated with a solution of peroxide of hydrogen the green colouration becomes quickly restored. When removed from the peroxide bath the colour again fades away, but if after the tissues have been thus a second time bleached by exposure to air they be once more immersed in the peroxide solution the green colouration reappears.

I send this additional note on the case in the hope that the facts herein stated may enable those who are well versed in the subject of pigmentations to form some opinion as to the nature of the substance responsible for the manifestations described.

The kidneys, the ovaries, the uterus, and certain other tissues from this case had rested in formalin solution for rather more than two months and had entirely lost their greenness. When, however, one of the kidneys was placed in the peroxide solution the distribution of the original green pigmentation became, in the course of a few minutes, most faithfully reproduced. The whole of the subcapsular layer quickly regained its green colour and, in addition, all the small green islands originally described as occurring in the medullary portion of the gland again came into evidence.

Cheltenham.

HERNIOTOMY UNDER LOCAL ANÆSTHESIA.

BY MARCUS MARWOOD BOWLAN, M.B., B.S. DURH.,
MEDICAL SUPERINTENDENT, ST. GEORGE'S-IN-THE-EAST INFIRMARY.

THE interesting lecture on Local Analgesia by Mr. A. E. J. Barker published in THE LANCET of July 25th, p. 203, leads me to submit the following brief note of a case of herniotomy under local anæsthesia.

The patient, who was a feeble woman, 77 years of age, vomited on June 12th, 1903, and this continued until the next day (the 13th). When she came under my care I found her to be suffering from a right femoral hernia with absence of impulse on coughing. The vomit consisted of the contents of the upper intestine. The breath had a fæcal smell. The specific gravity of the urine was 1023, it was acid, and contained a trace of albumin. On the same afternoon 40 minims of a 1 per cent. solution of beta eucaine were injected under the skin of the area selected for incision and a quarter of an hour later the incision was made, the patient feeling no pain. About 20 minims more of the same solution were dropped into the wound during the dissection so that only one drachm of the 1 per cent. solution of eucaine was used. On opening the sac the gut exposed was found to be deeply congested and some blood-stained fluid escaped. However, on examining the crural ring with the finger the hernia slipped back through it so that the hernia knife had not to be used. The sac was separated and tied with catgut. The patient retched a little during the night and had occasional hiccough, feeble pulse, and dryish tongue, but these symptoms quickly yielded to whisky and strychnine. Flatus was passed per anum on the next day but the bowels were only moved by an aperient four days later. The wound was apparently healed on the fifth day when it was dressed and the sutures were removed, but when it was dressed again on the 24th a small subcutaneous abscess had formed and this was drained with gauze. Possibly the eucaine solution was not quite sterile, though her temperature was never above 98 8° F. By July 21st the wound was quite sound and a few days later the patient was up and about but, of course, wearing a truss.

Before, and for a few days after, the operation the condition of the patient was serious, the heart's action being feeble and irregular, and it is a question whether a general anæsthetic would not have added sufficient (drug) "shock" to have proved fatal.

St. George's-in-the-East Infirmary, E.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF ŒSOPHAGOTOMY FOR THE REMOVAL OF A PORTION OF AN UPPER TOOTH-PLATE.

(Under the care of Mr. WALTER G. SPENCER.)

FOR the notes of the case we are indebted to Mr. G. Brittan Gill, house surgeon.

A female, aged 37 years, broke her upper tooth-plate but continued to make use of the two portions. On June 12th last, whilst at breakfast, the smaller fragment containing a bicuspid and two molars was carried into the pharynx. In trying to remove it the patient pushed it downwards out of reach. She was then seen by Dr. M. Sharman of Rickmansworth who made repeated attempts to extract the plate, in which he was assisted by Dr. E. A. Peters. The plate was several times grasped by forceps but could not be drawn upwards. For some days the patient refused but ultimately consented to go to hospital. Meanwhile she had marked dysphagia and pain in flexing the head but no dyspnœa. A skiagram showed the plate to be situated about the level of the seventh cervical and first dorsal vertebræ, a short distance below the cricoid cartilage.

On June 16th—i.e., on the fifth day from the accident—the plate was removed by Mr. W. G. Spencer, assisted by Mr. E. P. Paton, Dr. Sharman and Dr. Peters being present. The patient was anæsthetised without difficulty and then a fulness could be detected in the neck low down on the left side, but there was also a considerable enlargement of the thyroid gland. A No. 18 bougie was passed without meeting with any marked obstruction. An incision was made along the inner border of the left sterno-mastoid from the level of the thyroid cartilage for an inch or so in front of the manubrium The sterno-mastoid having been drawn outwards the jugular vein and carotid artery with the sterno-hyoid and sterno thyroid muscles as well as the recurrent laryngeal nerve were retracted inwards The œsophagus was thus exposed a short distance below the cricoid cartilage and the plate could be felt through the wall The plate was easily extracted, the œsophageal wall proving friable from septic inflammation, and tearing a little beyond the place actually cut through The wall would not hold sutures, so two drainage tubes were placed with their ends close to the opening and the rest of the wound was filled with iodoform gauze The patient was placed in bed without a pillow and with the foot of the bed raised She had been very excited before the operation but after it she was most amenable She was fed entirely by the rectum for the ensuing week, during which muco pus escaped freely from the wound On the fourth day there was found a tendency for the discharge to collect in the upper part of the wound, whilst all sign of inflammation spreading downwards was absent therefore the patient's position was changed and her shoulders were well raised

The pulse immediately after the operation was 130, on the next day it was 120 after which it subsided to the normal. The temperature on the first day reached 100° F and the respirations were 28, after which there was no elevation The patient's voice was hoarse for a few days and then it cleared Some water given her to drink on the eighth day nearly all flowed out by the wound On the tenth day egg with milk was for the most part swallowed On the fifteenth day she could swallow minced meat. She went home on July 6th, little more than three weeks from the accident and able to take full diet, the wound being represented by a small patch of granulations without any leakage from the œsophagus

Remarks by Mr SPENCER —Œsophagotomy for the removal of an impacted tooth plate has been in the past a most dangerous operation. After the skilful removal of the plate patients have succumbed to septic inflammation spreading to the mediastina and the lungs This has especially been the case when the superficial wound has been sewn up Many such cases are easily relieved by extracting the plate by means of a horsehair probang, coin catcher, or forceps Here this proved impossible Considerable fragments may pass and escape per anum A remarkable specimen preserved in the Museum of the Royal College of Surgeons of England is depicted by Dr F S Palmer in THE LANCET of Dec 10th, 1881 p 997 The plate was discharged about 17 hours after being pushed down the œsophagus The only alternative line of treatment which suggests itself is the passage of a straight tube and the breaking up the fragment with a lithotrite In this patient the cervical vertebræ projected forwards, so that even a soft bougie required the aid of the finger to pass, and thus no straight œsophagoscope could have been inserted Moreover, on the fifth day of impaction the œsophageal wall was anticipated to be in the friable condition found at the operation In operating the vessels were drawn inwards instead of outwards because the patient had a somewhat enlarged thyroid gland and numerous veins running between the lateral lobe and the jugular might otherwise have been met with Probably the sympathetic nerve was irritated, hence the rapidity of the pulse after the operation The patient's temporary hoarseness was doubtless the result of stretching the recurrent laryngeal nerve whilst drawing it aside

The experience of Mr H T Butlin in the removal of œsophageal pouches leads him to advise the application of sutures to the œsophagus only and to treat the rest of the wound by the open method In the present instance the fact that the wound soon healed shows that the open method does not give rise to any marked delay

---

SUSSEX COUNTY HOSPITAL

A CASE OF FRACTURE OF THE BASE OF THE SKULL WITH EXTRADURAL HÆMORRHAGE CAUSING COMPRESSION, TREPHINING

(Under the care of Mr R. F JOWERS)

A CABDRIVER, aged 39 years, was admitted to the Sussex County Hospital on March 3rd, 1903 having had a "fit" and fallen on to the paving of his stable He was said to be a heavy drinker and had been drinking that morning He had had one fit previously about three months before admission After the accident he walked to the hospital and while in the waiting room is said to have had another fit At any rate, he became unconscious and slipped from his chair on to the floor, in which position he was first seen by the assistant house surgeon who noticed that the pupils were unequal (the left being the larger) and that there was bleeding from the right ear This was dressed and the patient was sent into the ward When seen by Mr Jowers about two hours later he was lying quietly in bed in a semi conscious condition He was aware of being spoken to but gave incoherent muttering answers and resisted any attempt to see his pupils No fracture of the vault could be detected His temperature was 99 2° F and his pulse was 60 The right ear was ordered to be syringed twice daily and an emulsion of iodoform dropped in On the 4th the patient had had a restless night, he was delirious tremulous and picked at the bedclothes His condition suggested delirium tremens or some form of cerebral irritation He vigorously resisted any attempt to examine his pupils His temperature was 99 2° and his pulse was 74 On the 5th he had another restless night but was conscious in the morning He talked quite sensibly and said that he felt better His temperature was 98 2° and his pulse was 62 At 2 P M when seen by Mr Jowers he was quite unconscious There was well marked rigidity of the left arm and leg The right pupil was widely dilated and inactive and there was ptosis of the right eyelid The knee jerks were exaggerated and Babinsky's sign was present The temperature had risen to 100 8 and the pulse to 110 A consultation was held with Mr W Furner and Mr T J Verrall, who were in the ward at the moment and it was decided that if no improvement took place in a few hours he should be operated upon At 5 P M the rigidity had passed off and had been replaced by paralysis of the left arm and leg He was sweating profusely and breathing stertorously The temperature had risen still further and at 6 P M had reached 103°

The theatre being in use at the time operation was postponed till 9 P M, when, the head having been shaved, Mr Jowers turned down a semilunar flap and trephined over the middle meningeal artery, the opening being enlarged with bone forceps A large and thick extradural clot was exposed extending backwards further than the finger could reach and downwards towards the base of the skull. After removal of the clot with the finger and a scoop a large cavity was left between the skull and the dura mater, the brain showing no tendency to expand while the patient was on the table The cavity was gently irrigated with saline solution and the flap was sutured a drainage tube being brought out at each angle of the wound With the exception of the vessels in the flap and a small one in the bone which was stopped with Horsley's wax no bleeding was seen The patient had a good night and was quite conscious the next morning He could move his left arm and leg freely The right pupil, though less dilated still remained larger than the left, but now reacted to light There were some ptosis and paresis of the inferior rectus This and the other signs of paralysis of the third nerve entirely passed off in the course of the next few days He was very deaf in the right ear and could only hear a watch ticking on contact. A slight discharge of pus from one edge of the flap took place ten days later, but with this exception his recovery was uninterrupted A few days after operation the right ear was examined with the speculum which it had been impossible to do before There was a small blood clot adherent to the membrana tympani and partially obscuring it. By the time he left the hospital on April 29th his hearing had considerably improved and on examination no opening could be seen in the membrana tympani He has since been seen driving his cab

Remarks by Mr JOWERS —The difficulty at the time was to explain the onset of compression symptoms some 50 hours after the accident. It subsequently transpired that during the night previous to operation he struggled violently with the attendant in an endeavour to get out of bed The probability is that a hæmorrhage which had taken place in connexion with the fracture of the base and had become arrested was re started by his struggle and extended upwards till the whole hemisphere was compressed The exact source of the bleeding is uncertain Probably the fracture passed through the foramen spinosum, tearing the middle meningeal artery From the trephine opening the base could not be thoroughly seen and as no bleeding occurred there was no object in enlarging the opening so as to search for the fracture. In the few cases of compression from hæmorrhage I have met with the symptoms have been marked within a few hours of the accident. As the fact of his struggle with the attendant was not ascertained until the day after operation the explanation of the delayed symptoms due to compression was not apparent. The outlook in a heavy drinker with a fractured base was not encouraging, but operation seemed to offer the only chance of life.

Reviews and Notices of Books.

Social Origins. By ANDREW LANG, M.A., LL.D. *Primal Law.* By J. J. ATKINSON. London, New York, and Bombay: Longmans, Green, and Co. 1903. Pp. xi., 311. Price 10*s*. 6*d*. net.

THIS volume contains two distinct books which from a literary point of view might advantageously have been published separately. The introduction is written by Mr. Andrew Lang in his usual pleasing and playful manner which serves equally well to point the moral of a fairy tale or to illuminate the humour of an abstruse point of scientific interest. The manuscript of "Primal Law" was sent to Mr. Lang at the dying request of his cousin, James Jasper Atkinson, who had spent the greater part of his life in the New Caledonian Archipelago and who as a result of his observations discovered what he conceived to be the "primal law" which was the origin of morality as regards the family. Mr. Lang has very judiciously given to Mr. Atkinson's manuscript the last cares which, it is much to be regretted, the author himself was unable to carry out; he has also taken the opportunity to review the present state of the discussion as to the beginnings of the rules relating to marriages amongst savages. In so doing he occupies the greater part of the volume and what he says should prove of interest to all such as do not wish to take the subject too seriously, but desire rather to know something about the questions in dispute amongst serious anthropologists. To the German student an allusion, and one without an accurate reference, to the work of Thomas Haynes Bailey may prove a little embarrassing, but as a general rule exact references are given to the authorities quoted.

Mr. Atkinson's work is devoted to an explanation of his theory of the development of the social conditions of man in regard to family life, and he attempts to trace this development back to the condition of man when he was still in the brutal stage. From this it may be easily judged that the work is an ambitious one and when it is mentioned that the question is dealt with in eight short chapters and occupies little more than 80 pages it need hardly be added that the argument is presented in a somewhat condensed form. Mr. Atkinson held the Darwinian faith that "man is certainly descended from some ape-like creature" and, to use his own words, from this hypothesis he proceeds to treat of a "conjectural series of events in the Ascent of Man, events which involve a state of the intersexual relationships amidst our primitive ancestors identical with that portrayed in the 'Descent of Man.'" The essay in the course of the argument tends to confirm Darwin's ideas as to unity of origin. Mr. Atkinson suggests that the male ape-like ancestor of man was an unsocial creature largely imbued with fierce sexual jealousy—a solitary being save for association with one or more wives and female children. The young males of his and of similar families were rigidly exiled and these outcasts formed bands which ultimately became sufficiently strong to wrench both wives and lives from the paternal tyrants. There was ceaseless war between the patriarchs and the young males, for there was no special pairing season as in the case of the lower animals. As time went on it is assumed that the longevity of the race increased and this change entailed a more prolonged period of infancy, and then at length the dawn of brighter social conditions was brought about through maternal love. However caused, separation between the mother and her son was far more severely felt than it was by any other animal, and at each renewed banishment her feelings were increasingly outraged, her attempts to retain her youngest son grew stronger, and meanwhile the patriarchal fire of desire became quenched and his numerous daughters overtaxed his virile powers. In such circumstances a young male may have been permitted to live in his father's domestic circle, for at last, "given some such rather exceptional situation where an opportunity in superlative mother-love wrested with a for once satiated paternal appetite in desire, we may here discern a possible key to the sociological problem which occupies us and which consisted in a conjunction within one group of two adult males."

It is assumed that the junior male would be allowed to remain only on condition that he respected the marital privileges of the senior; hence he would have to seek his mate from without the band; and the conditions in which he lived with the female members of his own family gave origin to the curious etiquette of "avoidances" which is still to be found amongst some savage races and the history of which has been such a puzzle to anthropologists. The later chapters of Mr. Atkinson's essay are mainly devoted to this subject, and certainly if his hypothesis be accepted it may serve to unravel some tangled problems. The work is one which will undoubtedly greatly stimulate anthropological research and the central idea which it contains will be tested in the light of new researches. The author wrote from a place far away from books; his theory was the outcome of patient and prolonged work and the essay is vigorous and virile. It may indeed prove caviare to the general reader and even repugnant to those who, like the late Lord Beaconsfield, are "on the side of the angels"; nor will it commend itself to those who are not interested in, or are entirely ignorant of, the manners and habits of savage races. A preliminary acquaintance with Westermarck's history of marriage[1] and Spencer and Gillen's book on the Australian natives[2] will add to the interest of Mr. Atkinson's essay, and that Crawley's "Mystic Rose"[3] and the parts of Frazer' "Golden Bough"[4] which deal with marriage rites and customs include details instructive in this connexion. Mr. Lang tells us in his preface that he is indebted in various ways for assistance to, amongst other people, Mr. Crawley, who *not only* "*read the book, or most of it,*" but also "collaborated most efficiently in the way of suggesting objections."

The Diagnosis and Modern Treatment of Pulmonary Consumption, with special reference to the Early Recognition and the Permanent Arrest of the Disease. By ARTHUR C. LATHAM, M.A., M.D. Oxon., M.A. Cantab., Assistant Physician and Lecturer in Practical Medicine at St. George's Hospital, Assistant Physician at the Brompton Hospital for Consumption and Diseases of the Chest. London: Baillière, Tindall, and Cox. 1903. Pp. 215. Price 5*s*.

THIS volume contains a series of articles which have appeared in the medical press during the last few years. Dr. Latham has published them in a collected form in the hope that they may prove of service as a practical guide to the diagnosis and treatment of pulmonary tuberculosis.

---

[1] The History of Human Marriage. By Edward Westermarck, Lecturer on Sociology at the University of Finland, Helsingfors. London: Macmillan. 1891.

[2] The Native Tribes of Central Australia. By Baldwin Spencer, M.A., and F. J. Gillen, Special Magistrate and Sub-protector of the Aborigines, Alice Springs, South Australia. London: Macmillan. 1899.

[3] The Mystic Rose: A Study of Primitive Marriage. By Ernest Crawley, M.A. London: Macmillan. 1902.

[4] The Golden Bough: A Study in Magic and Religion. By J. G. Frazer, D.C.L., LL.D., Litt. D. Second edition. London: Macmillan. 1900.

The first three chapters are concerned with the diagnosis of the various forms of pulmonary tuberculosis, acute and chronic. The pages devoted to this subject will well repay perusal. Since the discovery of the tubercle bacillus the task of making a positive diagnosis of tuberculous disease of the lungs has been rendered far more easy, but many cases still present themselves with a history strongly suggestive of tuberculosis in which expectoration is either absent or bacteriological examination yields a negative result. Dr. Latham enters very fully into a description of the physical signs and symptoms which help the physician in arriving at a diagnosis. His remarks on the use of tuberculin for diagnostic purposes are interesting. When the disease is so slight that a diagnosis cannot be made by means of the physical signs, and no tubercle bacilli can be detected in the sputum, he believes that one, two, or three small injections of Koch's old tuberculin may be employed without the slightest risk. He places great reliance on this test although he adduces evidence to show that in certain cases a reaction may be obtained when tuberculosis is absent, but such instances must be very rare, as Professor Koch has stated that after an experience of some 3000 cases he considers the tuberculin test to be almost absolute.

Two chapters are devoted to the method of treatment as carried out in a sanatorium. Dr. Latham's views on this subject were set forth at length in the essay which obtained the first prize in the competition on the erection of the King's Sanatorium and which was published in THE LANCET of Jan. 3rd of this year. An interesting summary of other forms of treatment will be found in Chapter VII. The use of creasote, formic aldehyde, tuberculin, and other drugs is criticised, but Dr. Latham evidently does not consider them to be of great value, especially when compared with the sanatorium treatment. The chapter on the Treatment of Special Symptoms contains numerous valuable hints as to the treatment of cough, pain, night sweats, hæmoptysis, and other symptoms which so frequently arise in patients suffering from pulmonary tuberculosis. The prescriptions he suggests will be found useful and trustworthy.

The last chapter in the book is headed "Special Considerations" and contains many remarks on matters connected with tuberculosis, a few of which are contrary to the views held by some of the leading authorities. Dr. Latham, however, has the courage of his convictions and has acted quite rightly in thus plainly stating his opinions. For instance, he insists that as far as possible all patients should be treated under the same climatic conditions as those which they are likely to experience in their subsequent life. We consider this to be perfectly sound advice. It is true that patients with very limited disease do well at high altitudes and on returning to ordinary conditions suffer no harm, but such patients make equally good progress in the sanatoriums in this country. Dr. Latham likewise throws doubts on the hereditary nature of the disease. He quotes the statistics of Dr. J. Edward Squire which show that the difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents is very small. Dr. Latham remarks that these figures are remarkable, as the children of tuberculous parents who are the victims of active disease must in most cases, unless the necessary precautions are taken, be more exposed to the risk of infection. The statistics would appear to suggest, he says, that the children of tuberculous parents possess some natural immunity to the disease, for otherwise the percentage of children who develop tuberculosis should be much greater when the parents suffer from the disease than when they do not. As far as we are aware this is a perfectly original suggestion. It is one, however, that is worthy of careful consideration, although it is apparently contrary to views hitherto commonly held.

A System of Physiologic Therapeutics. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Senior Assistant Professor of Clinical Medicine in Jefferson Medical College, Philadelphia; Physician to the Jefferson Medical College Hospital. Vol. V., Prophylaxis; Personal Hygiene; Civic Hygiene; Care of the Sick. Illustrated. London: Rebman, Limited. 1903. Pp. 539. Price 12*s.* 6*d.*

THIS volume contains an epitome of what is essentially the natural history of medicine, including excellent contributions on matters concerning the origin, dissemination, and prevention of disease. The editor has taken a very wide view of etiology; he rightly thinks that in a consideration of the cause of disease the psychic as well as the physical characteristics of men must be taken into account, that due attention must be paid to heredity as well as to the constitution of the individual, and likewise that notice must be taken of the intrinsic failures and perversions as well as environmental factors that may disturb mind and body. He further maintains that the artificial conditions of civilisation, the diversity, complexity, and strenuosity of the activities of modern life, and the reciprocal influences of individuals upon communities and of communities upon individuals render it necessary, alike in the study of personal hygiene and of public health, to consider, at least by allusion, many aspects of sociology. The purview so indicated involves questions of economics, of engineering, of manufactures, of architecture, of pedagogics, of commercial intercourse, of taxation, and of municipal government. It will be thus seen that Dr. Cohen has set himself a large task if his ideas are to be carried out in full. A perusal of this book will show that the material collected together is most interesting and varied and that he may be congratulated, as far as the fifth volume is concerned, on the success of his endeavours.

The work is divided into three parts. Part I. is headed "The Origin and Prevention of Disease" and is written by Dr. J. McFarland, professor of pathology and bacteriology in the Medico-Chirurgical College, Philadelphia, and Dr. W. Wayne Babcock, lecturer on pathology and bacteriology in the Medico-Chirurgical College. A vast number of topics are discussed in connexion with the etiology and prophylaxis of disease and its diffusion. Especially interesting are the remarks on the methods of transmission of disease by animals and the modes of parasitic invasion, action, and elimination. The prophylaxis of the infectious fevers naturally holds a prominent place, and the introduction of summaries in tabular form makes the more important points easily accessible for reference.

Part II. is devoted to Civic Hygiene and is written by Dr. H. Leffmann, professor of chemistry and toxicology in the Women's Medical College of Pennsylvania. In this section chapters will be found on Municipal Health Organisation, Food- and Water-supply, and Disposal of Waste.

Part III. is entitled "Domestic and Personal Hygiene; Nursing and Care of the Sick-room." The author is Dr. Albert Abrams, consulting physician to the Mount Zion Hospital and to the French Hospital, San Francisco. Dr. Abrams enters fully into a consideration of the hygiene of dwellings, of the school, and of travel. A chapter is devoted to Personal Hygiene, another to Hygiene of Special Periods, and a third to Hygiene of the Diatheses. A carefully prepared index adds to the value of the publication as a work of reference.

LIBRARY TABLE.

Practical Pharmacy and Prescribing. By JAMES CALVERT, B.Sc., M.D. Lond. London: H. K. Lewis. 1903. Pp. 110 and interleaved. Price 4*s.* 6*d.*—This is a second edition of an excellent little notebook which is in use by the students of medicine at St. Bartholomew's Hospital. It is divided into two parts, the first part dealing with practical pharmacy and the second part with prescribing. The first part, as Dr. Calvert acknowledges, was written upon a basis given to him by Sir T. Lauder Brunton, to whom he acted as demonstrator in pharmacology at St. Bartholomew's Hospital. In the second part, dealing with prescriptions and incompatibles, we have the author's attempt to interest the students just before they enter upon their practical work in the wards, and while their chemistry is still fresh in their minds, in the importance of practical therapeutics so that "when they pass into practice they may not be absolutely chained to the formulæ of the hospital pharmacopœia or of the manufacturing chemist." The book is interleaved throughout that the writer may record his own experiences and make memoranda of successful preparations.

A Model Sanatorium for Tuberculosis. By ALEXANDER G. R. FOULERTON, F.R.C.S. Eng., D.P.H. Cantab., and R. LANGTON COLE, F.R.I.B.A. London: Rebman, Limited. 1903. Pp. 31.—This small book, being an essay submitted in the recent competition for the King's Sanatorium Prize, sets out in very clear language, with ground plans, sections of elevations and measurements, a model sanatorium for the treatment of pulmonary tuberculosis. The authors adopt the pavilion system as one combining as far as possible the separate cottage system with facilities for careful supervision. Where it can be managed the aggregation of patients under cover indoors is avoided, although a large winter garden provides opportunity for a certain amount of recreation in common. The estimated cost of erecting the sanatorium is £115,000 and many features of the building are common to the prize plans which we have already published in our columns.

A Manual of Toxicology. By ALBERT H. BRUNDAGE, A.M., M.D., Phar. D., Professor of Toxicology, Physiology, and Hygiene in the Brooklyn College of Pharmacy. Second edition. New York: The Henry Harrison Company. London: Baillière, Tindall, and Cox. 1902. Pp. 375. Price 6*s.*—This volume is intended to be "a concise presentation of the principal facts relating to poisons, with detailed directions for the treatment of poisoning." The author has succeeded in producing a work which will serve as a ready means of review of the salient points of toxicology and as a convenient book for reference in cases of emergency. The first part deals with general considerations, such as the classification of poisons and the methods of procedure to be adopted when symptoms and circumstances indicate that a poison has been taken. In the second part the poisons are considered seriatim, the various drugs being taken in alphabetical order, for convenience of reference a good plan. The fatal dose is first given and it is understood that the doses are for adults and, of course, are subject to modification according to the circumstances of the case, such as whether the drug has been taken on a full or an empty stomach. The symptoms are then described, the more important being printed in bold-faced type; the same plan of alteration of type is also adopted in the paragraphs on treatment, so that the main points can be seen at a glance. Each poison is described briefly though at sufficient length for all purposes desired by the practitioner to whom the work would really be useful in an emergency. The book is not one which we should recommend to students for examination purposes, for too much is included. The author has spared no pains in rendering his book as complete as possible and has included not only the substances which are usually recognised as poisonous but also those which only occasionally produce alarming symptoms. The tests for poisons are duly given and also the outline of procedure in searching for poisons is accurately indicated. The post-mortem appearances are placed towards the end of the book. We think a more convenient place would have been in the second part of the book, where the symptoms and treatment in connexion with the respective poisons are described.

Medicine for the Mind. London: St. Martin's Press. Pp. 138. Price 2*s.* net.—This is a funny little book of quotations in which the author attempts to tabulate the defects of the mind and to supply a quotation from a well-known author in remedy of each defect. A book with such a scheme is foredoomed to failure. As a collection of quotations it has some merit, but not as an adjuvant in mental therapeutics.

Hindustani Grammar Self-Taught. By Captain C. A. THIMM. London: Marlborough and Co. 1902. Pp. 118. Price 2*s.*—This book is a sequel to the author's "Hindustani Self-Taught" which was published a few years ago and contains the essential points and rules of grammar with notes to illustrate the construction of the language that will be needed by those who may require to pass Government examinations. We observe that the dictionary of Hindustani every-day words which is appended to the grammar contains no words of medical significance but the colloquial vocabulary is profuse. Urdu is the language most widely spoken in India and a mere smattering of it is of service to all whose business takes them to our Eastern empire. Many of our countrymen who pass long periods of their lives, whether in political, military, or civilian employ, in our Indian empire do contrive to acquire a rudimentary acquaintance with Hindustani and to such Captain Thimm's book will be of practical use.

The Rearing of Infants. By ROBERT GUY KELLETT, L.R.C.P., L.R.C.S. Irel. London: A. H. Jones. 1903. Pp. 40. Price 6*d.* net.—This little pamphlet is addressed to the public and is justified by the sacrifice of infant life which is revealed by the annual reports of the Registrar-General. "There are few girls," says the author, "...... and still fewer women who do not think that by virtue of some instinct of their sex, and without any special thought or training they are quite capable of bringing up an infant." This is a melancholy truth and any book that can impress upon the public that it is the duty of a young wife about to become a mother to learn something of the responsibilities so soon to be thrust upon her is fulfilling a good object. Mr. Kellett's little work is quite elementary, remarkably simple in language, and, as far as it goes, it is sound. It is not likely to prevent cases of serious illness from obtaining medical notice.

The Law of Mental Medicine. By THOMAS J. HUDSON, Ph.D., LL.D. London: G. P. Putnam's Sons. Chicago: A. C. McClurg and Co. 1903. Pp. 281. Price 7*s.* 6*d.*—This book is a correlation of the facts of psychology and histology in their relation to mental therapeutics and aims at placing mental therapeutics on a firm scientific basis. The object of the book is therefore excellent, but when we look closely into it we find it full of suppositions upon the physical mechanism through which mental health is affected; animal magnetism (whatever that may signify), hypnotism, and thought-transference are treated as though more was proven concerning them than any scientific thinker can allow, and generally the book, although suggestive, leaves the impression of being speculative and unsound.

The Ventilation, Heating, and Management of Churches and Public Buildings. By J. W. THOMAS, F.I.C., F.C.S. London, New York, and Bombay: Longmans, Green, and Co. 1903. Pp. 140. Price 2*s.* 6*d.*—In this little book a great deal of information is compressed into a very small compass, for within its modest number of pages we find discussed fairly thoroughly the physical laws bearing upon th ventilation of buildings. The book is well illustrated, the illustrations showing the result of many experiments on wind action and intermittent air currents. Ventilation is, of course, a subject on which much remains to be said, for upon many of the most important points comprised under the word differences of opinion exist among scientific men; but Mr. Thomas deals with the matter in a practical manner and his book should prove of value to all who are in any way concerned with the question of house construction. The chapters on How Ventilation can be Improved and the Ventilation of New Buildings will in particular repay perusal. The last chapter contains instructions for the caretaker, but we think it is asking too much of the average porter to expect him to take intelligent notice of prevailing winds and temperature.

JOURNALS AND REVIEWS.

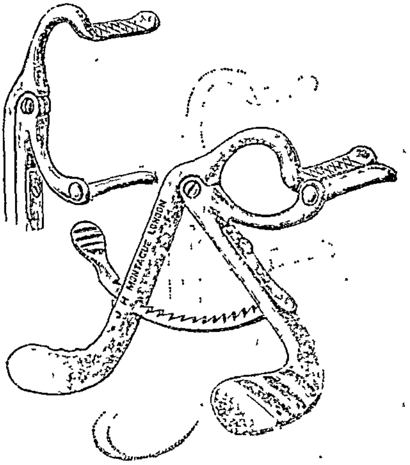
Journal of the Royal Army Medical Corps. No. 2, August, 1903. London: John Bale, Sons, and Danielsson, Limited. Price 2s. net.—The second number of this new medical journal fulfils the expectations realised by the first issue and Major R. H. Firth, R.A.M.C., is to be congratulated upon the success under his editorship. The first article, "Notes on Surgical Experiences of the Boer War," by Surgeon-General W. F. Stevenson, C.B., R.A.M.C., discusses the "humane" and "merciful" effects of the small-bore rifle bullet, the conclusion of the author being that a little can be said in favour of the "humanity" of the modern bullet, but only a very little. Lieutenant F. Bruce, R.A.M.C., contributes a paper entitled "Experiences of X-Ray Work during the Siege of Ladysmith." There are notes on a case of Spear-wound of the Heart, with Recovery, by the late Captain T. McArdle, R.A.M.C., and on two cases of Perforating Gunshot Wound of the Skull, by Lieutenant-Colonel S. F. Lougheed, C.M.G., R.A.M.C. The illustrations to these papers are excellently reproduced. A very interesting article is a Historical Retrospect of the Army Surgeon in Britain prior to the Sixteenth Century, in which the author, Captain H. A. L. Howell, R.A.M.C., acknowledges indebtedness to the late Sir James Simpson for the archæological researches relating to the surgeon in the Roman armies in Britain.

The Practitioner.—The issue of this magazine for August contains a paper, "The Treatment of Gout in Carlsbad," a comprehensive contribution from Dr. B. London, which includes a fairly full discussion of the much vexed etiological and pathological questions surrounding the subject of *arthritisme.* Dr. Leonard Williams contributes an article upon Peripheral Neuritis of the Alcoholic Type, containing the accounts of two cases which are interesting and important mainly from the apparent certainty with which special etiological factors could be excluded. Dr. Williams regards no explanation of the facts of peripheral neuritis as satisfactory which fails to include not only both alcohol and arsenic but also "some other factor or factors of which only this can be said, that they bear no ascertainable relationship either to the one or to the other." Mr. Thomas B. Futcher supplies some careful observations on points of metabolism in gout with special reference to the relationship between the uric acid and the phosphoric acid eliminations. These are based on observations made for Dr. Osler. Dr. S. Vere Pearson and Mr. J. P. L. Mummery, in a very practical paper upon the After-treatment of Empyema in Infants, lay stress on the importance of early removal of the drainage-tube and on the evil of washing out the cavity with antiseptics. Importance is also attached to careful observation of the physical signs upon the side of the disease after the operation and especially to attention to general symptoms and careful treatment of the child's general condition.

New Inventions.

A NEW GAG.

THE instrument shown in the illustration possesses some qualities which render it peculiarly suitable for certain anæsthetic emergencies. Operations on the ear and brain necessitate a fixed position of the head which precludes the
easy introduction of either dis-
turbing the operator f the head
itself. This is clearly s With the
gag now described the handle lies in the same vertical plane as the blades when the latter are open and in position against the upper and lower jaws. The blades when closed



are practically on the same horizontal level, and are, therefore, easily inserted between the teeth. There are two ways of using the gag—namely (1) with the handle downwards as shown in the illustration; and (2) with the handle upwards on the cheek, best seen in the figure by turning it upside down. The latter position will be found the more convenient of the two for opening the mouth during the progress of an operation as no lateral movement of the head or face need be caused. The anæsthetist standing or sitting in front of the patient can easily place the instrument in position and swab out the throat or seize the tongue, as the case may be, without the least trouble or disturbance. I have used this gag for keeping the mouth open and fixed in many nose and throat operations, and I can strongly recommend it for rapidity of introduction and strength of grip as well as for simplicity of action and general utility in this class of cases. Originally devised for use during mastoid operations, I have found the gag extremely serviceable in adenoid and tonsil cases. The linear arrangement of the closed blades renders introduction easy, and there is a large space available to the operator when the jaws are fixed, owing to the wide outward sweep of the arms. I am indebted to Mr. J. H. Montague, 101, New Bond-street, London, W., s.

W.

Weymouth-street, W.

MEDICINE AND THE LAW.

Medical Men and Death Certification.

A SINGULAR charge of petty fraud at the recent Glamorgan assizes drew from the grand jury and from Mr. Justice Channell, before whom the prisoner pleaded guilty, certain strictures upon the conduct of Mr. H. E. Charles, a medical man practising at Swansea, which the medical profession will regard as unjust and undeserved. In April last

Mr Charles had brought to him a child suffering from measles and chest complications. On the following day the mother came again and informed him that the child was dead and as this in no way surprised him at the mother's request he gave her the usual certificate, assigning as the cause of death the conditions which he had observed. Medical men who have had experience of general practice will see nothing lax or improper in Mr. Charles's conduct, nor will they find anything in the law ordering any different course to be taken. As a matter of fact, however, the child was alive and the mother had represented it to be dead and had obtained the certificate in order to defraud an insurance company of £3 10*s.* This sum she was charged with obtaining by false pretences and it was the fact that Mr. Charles had given a certificate without seeing the dead body which gave occasion for the observations of the judge and for a presentment by the grand jury, the members of which no doubt took their cue from observations made by his lordship in charging them. Mr. Justice Channell, it is true, called Mr. Charles into the witness-box and to some extent permitted him to explain; but he did not apparently accept his explanation or appreciate the fact that what had occurred was due to the provisions of the law and to the practice which has arisen under it. The law relating to death registration and burial is far from perfect and in the public interest alterations might be made in it. If, however, such alterations were to involve the inspection of every dead body by a medical man before the fact of death was established such inspection would have to be made a matter of legal obligation for which the relatives would be compelled to afford facilities and for making which the medical man would have to be remunerated at the public expense. At present a medical practitioner insisting upon seeing the body after being told by a relative whom he has no reason to disbelieve that his patient is dead in many instances would incur odium and would give unnecessary pain. The question of payment and of waste of time also would arise, particularly in such cases as that under discussion. Little or nothing, however, would be achieved towards protecting the public, because in the absence of any compulsorily uniform practice persons meditating fraud would select a medical adviser who would rely upon the information given by them. In the case in question Mr. Charles might have used in his certificate the phrase "as I am informed," and no doubt medical men, to whose notice his unpleasant experience is brought, will in future be careful to do this where the body has not been seen by them after death. On the other hand Mr. Charles might, by insisting upon seeing the body, have prevented a fraud upon an insurance company, but the protection of possibly interested commercial bodies, well capable of protecting themselves, forms no part of the medical man's already burdensome public duties. A certain want of lucidity in the dicta of Mr. Justice Channell, as reported in the local press, makes it difficult to say the precise extent of the precautions which he would impose upon the medical profession. The mere inspection of the dead body would establish the fact of death and so prevent a fraud such as that exposed at the Glamorgan assizes, but it could not insure the detection and punishment of cunningly carried out crime of another class. The following observations, however, are ascribed to the learned judge: "Oh, dear me, you have nothing to do but hold your hand and give it to the coroner." "If you have seen the child once and are told that it was subsequently dead I don't think you are justified in certifying it died from the disease of which you happen to know it is suffering. A little more caution is necessary." It is not clear from this whether Mr. Justice Channell thought that Mr. Charles might have left the case in question to the coroner for investigation or that the mere sight of the dead body would have put him in the right. Any such examination of the body as would with any certainty detect crime, should any crime accelerating death have been committed, would be entirely beyond the power of the medical man upon such an occasion, and again it must be pointed out that the medical practitioner is not, and should not be, a detective. In our view, if the law is in any respect unsatisfactory it is within the scope of the duties of judge or grand jury to aid in bringing about amendment by calling attention to defects. To censure an honourable man who has not infringed the law because in a particular instance the law has not proved effective to prevent a petty crime being perpetrated by an unscrupulous person is not likely to increase the respect with which the administration of justice should be regarded.

THE
BRITISH MEDICAL ASSOCIATION
MEETING AT SWANSEA.

◆

THE SECTIONS.
SURGERY.
FRIDAY, JULY 31ST.

Mr. **SINCLAIR WHITE** (Sheffield) read a paper on

Two Cases of Ascites secondary to Alcoholic Hepatitis treated successfully by Operation.

In the first case a woman, aged 38 years, who had been alcoholic for four years, had much ascites. She had been tapped twice and her liver was hard and nodular. The abdomen was opened and the omentum was found forming a hard irregular mass. The upper surface of the liver was rubbed with gauze and the anterior border was stitched to the diaphragm and the anterior abdominal wall was stitched to the great omentum. A drainage-tube was inserted just above the pubes. The operation caused a great deal of shock but the patient soon rallied and was now quite well. In the second case a woman, aged 34 years, had been in the habit of taking much alcohol. She had been tapped three times. The same operation was performed. The drainage-tube was kept in for four weeks and the patient did not begin to improve for two months, but she was now well. As a result of this operation new venous channels formed in the adhesions and conveyed the portal blood into the systemic veins. Mr. White thought that the nutrition of the hepatic cells was also improved. Up to the present more than 100 cases of this operation had been recorded.

Mr. **H. BETHAM ROBINSON** (London) read a paper on

Separation of the Acetabular Epiphysis of the Femur.

He thought it probable that many cases were mistaken for hip disease. The centre in the head appeared at the age of one year and the epiphysis united with the neck in the twentieth year, so that between those ages separation of the epiphysis might occur. In one case a lad, aged 19 years, fell on to his left hip and he limped for three months and when examined the tip of the great trochanter was found to be half an inch above Nélaton's line. The joint was opened and the separated epiphysis was removed. After the operation the joint was kept at rest and later massage was employed, but no weight was allowed to bear on the limb until six months after the operation. In another case a lad, aged 17 years, fell and at first there seemed to be no change as regards Nélaton's line, but later the tip of the great trochanter was half an inch above Nelaton's line. There was only a slight range of movement. When the joint was opened the epiphysis was found to be separated and rotated forwards. In a typical case the limb was everted but there was not the rigidity of hip-joint disease. The gluteal fold was present but raised. The condition was probably not rare but very few cases had been published. Mr. Robinson was inclined to suggest that the primary change was similar to that giving rise to the coxa vara of adolescents. Probably many cases were looked upon as hip disease. The best treatment was to remove the separated epiphysis.

Mr. **WILLIAM SHEEN** (Cardiff) read a paper on

A Case of Operative Treatment for Cirrhosis of the Liver.

The patient was a sergeant-instructor in the army; he had had symptoms of portal obstruction for about a year and had been tapped four times. The abdomen was opened and the great omentum was found to be adherent to the peritoneum of the anterior abdominal wall. The convex surfaces of the liver and spleen were rubbed with gauze and a drainage-tube was inserted above the pubes. The abdomen was firmly strapped with broad bands. The man had fully recovered and had had no return of the ascites. Mr. Sheen considered that the continuous drainage and the firm strapping were the essentials of the operation.

Mr. **R. W. MURRAY** (Liverpool) read a paper on

The Ultimate Results in a Series of 88 Cases of Fracture of the Tibia and Fibula.

The paper was accompanied by a table of all the cases with details of each case. He remarked that most surgeons seemed to be satisfied with the results, but his personal examination of a series of cases made him think that the results were not good. He found that the direction of the fracture had much influence on the time during which the patient could not work. If the fracture were transverse on an average three and a half to four months elapsed before the utility of the limb was completely restored, but if the fracture were oblique on an average seven months elapsed before the patient could do his ordinary work. One cause of this long duration of uselessness of the limb was, in Mr. Murray's opinion, the uncomfortableness of an ordinary back splint. When the fracture was oblique the limb rotated outwards even though the foot was fixed. He showed a form of splint which was the most useful. The foot was held at an angle greater than a right angle and the foot was inclined outwards. This was the true natural position of rest. The chief obstacles to "setting" a fracture were hæmorrhage into, and inflammation of, the soft parts and piercing of fasciæ by the sharp ends of the bone. In many cases operative treatment was desirable, especially if the fracture was in the lower third of the limb and if a skiagram showed that less than two-thirds of the fractured surfaces were in contact. In Pott's fracture the prognosis was not so good as when both bones were broken. In seven out of 31 cases utility of the limb was not fully restored.

Mr. Betham Robinson mentioned that plaster-of-Paris, as used at St. Thomas's Hospital, completely prevented displacement.

Mr. Reginald Harrison (London) had found that division of the tendo Achillis was very useful in obtaining correct apposition of the fragments.

Mr. O. P. Childe (Southsea) considered that in all fractures of the leg the knees should be fixed.

Mr. A. H. Tubby (London) was of opinion that if by the fourth day all ordinary means had failed to obtain a good position of the fragments it was best to cut down on the fractured ends and to fix the bones together by some mechanical means.

Mr. R. H. Anglin Whitelocke (Oxford) was inclined to think that the interposition of muscle or fascia was a common cause of difficulty in obtaining correct apposition.

Dr. Alfred Sheen (Cardiff) had used plaster-of-Paris bandages extensively and was very satisfied with them. One great advantage was that the patient, if there was no swelling, need not be detained in the hospital for more than a day or two.

Mr. Jordan Lloyd (Birmingham) said that surgeons were apt to neglect such simple injuries as fractures and to leave them to the house surgeons. He thought that fractures were treated now worse than they ever were treated.

Mr. Murray, in reply, said that at the present time a capable surgeon need not fear making a simple fracture compound and therefore operation in suitable cases was clearly indicated.

Mr. P. J. Freyer (London) read a paper on

A Further Series of 32 Cases of Total Extirpation of the Prostate for Radical Cure of Enlargement of that Organ.

A year ago at the Manchester meeting of the British Medical Association Mr. Freyer gave details of his first series of 21 cases of total extirpation of the prostate. He now brought forward a further series of 32 cases of the operation performed by him during the year that had elapsed since then and showed a large number of prostates which had been removed. The first 24 of this second series had already been described in various lectures and papers and so he confined his account to the remaining eight cases. In one case, that of a man aged 81 years, prostatic symptoms had lasted ten years and three years ago vasectomy had been performed by another surgeon without benefit. The prostate was removed entire suprapubically; the patient began to pass urine naturally one month later and was now in excellent health. In another case, that of a patient aged 62 years, a "middle lobe" as large as a Tangerine orange had been removed by another surgeon but a permanent suprapubic fistula remained. Mr. Freyer removed the prostate suprapubically and the patient made a good recovery and could pass and retain his urine naturally. In a third case, that of a patient aged 74 years, there had been retention on several occasions. The operation was a very rapid one, only two minutes elapsing from the commencement of the suprapubic incision to the complete removal of the prostate. Mr. Freyer had performed the operation in 53 cases, the ages varying from 57 to 81 years. All the patients were in broken health and many had severe complications such as cystitis, pyelitis, and diabetes. Excluding two cases still under treatment there remained 51 cases and of these 46 were successful both immediately and remotely, the patients being able to retain and to pass their urine naturally. One died suddenly from heat-stroke on the tenth day, two died from acute mania after the wounds had practically healed, one died from coma due to retention of morbid products in his urine which had set in before the operation, and one died from pneumonia seven days after the operation. Even counting all these five deaths which occurred in connexion with, though they were not due to, the operation the mortality was only 10 per cent. Among the last 19 completed cases no mishap of any kind had occurred. In no case did a permanent fistula remain and in no case was there septicæmia, the temperature throughout remaining normal. Mr. Freyer suggested that patients who did not die from septicæmia on first entering on catheter life gradually became more or less immune from slow absorption of toxins over lengthy periods.

Mr. Reginald Harrison referred to two cases which he had operated on during the last two weeks. In one patient, aged 74 years, a suprapubic cystotomy was done and a stone was found impacted between the two prostatic lobes and complete obstruction was present. The prostate was removed and the patient was doing well. In the other patient, aged 60 years, by a lateral incision in the perineum he was able to enucleate an encapsuled tumour in the prostate. He considered the perineal route a very good way of approaching an enlarged prostate.

A medical man who was present and on whom Mr. Freyer had operated spoke of his personal experiences. He had had great difficulty of micturition for about four years and vasectomy had been performed without benefit. Then Mr. Freyer had removed the prostate by the suprapubic operation and since then he had had full control over the bladder.

Mr. A. B. Mitchell (Belfast) described a case of enlarged prostate in which he had performed prostatectomy. He did not consider the perineal so easy as the suprapubic operations.

Dr. H. T. Herring (London) pointed out that many of the symptoms which were often attributed to enlargement of the prostate were really due to the concomitant sepsis. The continuance of these symptoms was brought about, not by one inoculation, but by the constant and repeated introduction of septic matter. If care was taken to prevent septic infection of the bladder the passage of a catheter two or three times a day would keep the patient in good health. Such a case would not be suitable for operation. The prevention of sepsis could be effected by drilling the patient from the beginning in details of asepsis. He considered that this operation should be reserved for exceptional cases when all other methods had failed to give relief.

Mr. Jordan Lloyd said that Mr. Freyer's operation was entirely new and not identical with preceding operations. He had found it difficult to remove prostates which were causing obstruction and yet were not much enlarged.

Mr. Betham Robinson mentioned that Mr. Freyer in his account of one of his cases had said that he removed a piece of the recto-vesical fascia. This would open up all the connective tissue of the pelvis and lead to extensive cellulitis.

Mr. Freyer, in reply, said that he had removed only a thin layer and not the whole thickness of the recto-vesical fascia. Theoretically it was possible to keep a bladder aseptic in spite of regular catheterism, but practically it was almost impossible.

Mr. Tubby read a paper on

A Method of treating by Operation Paralysis of the Upper Root of the Brachial Plexus (Erb-Duchenne Type).

In this condition, due to injury of the root of the fifth cervical nerve, there was loss of power at the shoulder and at the elbow. He treated these paralyses by muscle grafting. He restored the power of flexion to the elbow by splitting off a portion of the outer head of the triceps and attaching it to the biceps. The loss of power at the shoulder was treated either by *splitting off a portion of the pectoralis* major, taking it over the acromion, and inserting it into the deltoid, or by joining a portion of the trapezius to the deltoid. The latter was the better method.

[illegible] that he, in conjunc- [illegible] per in the Section of [illegible] orm of paralysis and its treatment were discussed. It was necessary to test the cervical nerve *roots* by weak faradic currents, so as to know which were the paralysed fibres. Sometimes only half of the fifth cervical root was paralysed. The treatment they had adopted was to suture the fifth cervical nerve to the sixth with very good results.

insanity, though obvious, was of recent origin and had not become permanently established or confirmed. Dr. Yellowlees then referred to the general rules to be followed in the treatment of incipient insanity—viz., removal of the patient from the surroundings where he usually lived, experienced nursing and skilled medical treatment, pleasant companionship, good food, rest, and suitable amusement. Though general principles were thus stated, their value, he said, lay in their judicious application. He hoped that the reception "houses" for incipient cases of lunacy which the London County Council was about to provide would be under the jurisdiction of the Commissioners in Lunacy and placed in the charge of skilled resident physicians who had had experience in the diagnosis, care, and treatment of lunacy in its various forms. He thought that all asylums for acute and curable cases of insanity should be small.

A discussion followed the reading of this paper in which Dr. R. S. STEWART (Glamorgan), Dr. BOYLE, and Dr. FLASHMAN took part, after which the PRESIDENT spoke on the importance of the scheme of treatment of incipient insanity and Dr. YELLOWLEES briefly replied.

Dr. STEWART read short portions of a paper on Wages, Lunacy, and Crime in South Wales, and Dr. A. T. SCHOFIELD read a few abstracts of a paper on Psycho-Therapeutics, its Use and Abuse. Both these papers were read without discussion owing to lack of time and the remaining papers on the programme were taken as read.

LARYNGOLOGY AND OTOLOGY.

THURSDAY, JULY 30TH.

Dr. P. MCBRIDE (Edinburgh) and Professor ARTHUR HARTMANN (Berlin) introduced a discussion on

The [illegible] on the Temporal Bone in
[illegible] le-Ear Disease.

Dr. MCBRIDE in his opening address gave an interesting account of the history and development of operations upon the temporal bone from 1649, when Riolanus suggested the first operation of opening into the mastoid cells. It is said to have been proposed as a remedy in cases of occlusion of the Eustachian tube. The subsequent development of the technique of the mastoid operation was traced down to the present time.

Professor HARTMANN confined himself to some practical points and to showing some anatomical preparations in illustration of them. Speaking of acute inflammation he said that in opening the mastoid the antrum, as a rule, should be opened so as to allow free communication with the tympanic cavity. Only in those cases of abscess of the mastoid in which the internal wall of the abscess during operation appeared to be healthy and in which there was no swelling of the posterior and superior wall of the meatus and of the upper part of the membrane should they confine themselves to the removal of diseased bone and not open the antrum. If there were any symptoms or signs pointing to an extension of suppuration to the middle or posterior cranial fossa, then the bony parts should be removed until the dura mater was exposed. In order to effect a rapid and lasting cure by this operation the entrance to the cavity of the mastoid must be made very wide. All the bone over the diseased parts, chiefly the posterior and inferior edges of the bony cavity, must be removed and also the external part of the posterior wall of the meatus; by so doing the soft integuments afterwards lined the cavity. Speaking of the treatment of chronic suppuration of the middle ear, he said that the principle of the radical operation was that all the affected parts of the tympanic cavity and mastoid were rendered perfectly accessible and visible. For this purpose (1) all bone external to the affected parts must be removed; and (2) the external meatus must be considerably enlarged. Professor Hartmann here demonstrated several preparations showing the relationship of the facial nerve to the inner and posterior wall of the meatus. In the treatment of labyrinthine suppuration he said that the vestibulum could be opened without difficulty by removing the stapes from its window. If it were not to be seen the vestibulum could be opened by the burr, but they must avoid going upwards in order not to injure the facial nerve; by going too deeply the carotid might be injured. In the majority of cases purulent inflammation of the labyrinth extended from the mastoid through the semicircular canals. The operation could be performed from the semicircular canals or from the promontory according to the seat of the disease. Preparations were demonstrated in illustration of these points. Before operating for chronic suppuration he recommended that the tympanic cavity and the antrum should be cleansed as thoroughly as possible by means of a suitable cannula such as he had devised; he had seen many cases in which the radical operation had been advised but after cleansing the parts in the way mentioned the discharge ceased and by a few repetitions of this purification the necessity for an operation was obviated. He had met with similar experience in the treatment of suppuration of the antrum of Highmore. He said that, as a rule, after the operation several spots were left covered with epithelium, such as the inferior and superior wall of the meatus, also a small piece of the internal part of the posterior wall, some parts of the surface of the internal and upper wall of the tympanic cavity and the antrum; from these spots epidermisation could extend. By enlarging the opening of the meatus and removing the edges in a manner recommended for acute abscess, the soft parts extended inwards and only as mall cavity was left to be covered. The best grafts were the natural extensions from the soft parts in the cavity. The enlargement of the external meatus might be effected by means of Korner's flap or by the Y-shaped cut of Siebenmann. The more they enlarged the meatus the more they diminished the external surface of the wound cavity and epidermisation of the internal surface could more easily and readily take place by extension from the edges of the enlarged meatus. Epidermisation by implanting skin grafts was not now performed in Germany so much as formerly. Dr. Hartmann said that by proceeding in the manner he had recommended, by leaving some parts of the internal surface covered with epithelium, by removing the edges so that the whole cavity was rendered very small, and by enlarging the external meatus considerably, they seldom had to resort to skin-grafting and the wound behind the concha could be sutured after the operation.

Dr. J. DUNDAS GRANT (London) considered that Dr. Hartmann had taken a very practical course in dividing the operation into two groups according as they were practised for acute or chronic inflammation. The two operations were entirely different. It had been said that the radical operation was performed too often; in his opinion the non-radical operation for acute inflammation was performed too seldom. He preferred to work with a firm bent probe, such a one as devised by himself, or Stacke's guard, but it in itself was capable of doing damage unless it was held by an experienced assistant; the guard itself might be the agent in damaging the facial nerve.

Dr. R. C. ELSWORTH (Swansea) showed some preparations of the temporal bone cut to demonstrate an accessory antrum above and behind the antrum itself, and also a small vein connected with this accessory cavity.

Professor GLUCK (Berlin) demonstrated by means of diagrams the operation which he performed for nerve grafting and suturing between the facial and accessory nerves. He also demonstrated the extirpation of the jugular vein and the transverse sinus for sinus thrombosis.

Dr. W. JOBSON HORNE (London) speaking of the technique of the mastoid operation referred to the relationship of the posterior bony wall of the meatus to the facial nerve, and considered that more of the wall could be cut away than was generally practised, and without injury to the facial nerve. That point had been demonstrated by Dr. Hugh Jones at a meeting of the Otological Society of the United Kingdom recently held in Liverpool. By a more efficient removal of that part of the bone better drainage was established, healing was accelerated, and a possibility of a subsequent narrowing or stenosis of the meatus was lessened. Referring to Dr. Elsworth's specimens he considered the vein to be a tributary to the petrosquamosal sinus and the accessory antrum really an aberrant mastoid cell. Whilst fully agreeing that both might have a pathological bearing he was opposed to dignifying either with a special name and thereby adding to the terminology with which the bone was already burdened.

Dr. HERBERT TILLEY (London) thought that there were far too many instruments being introduced for the less important steps in the operation and that they would come to depend less on surgical skill and a knowledge of anatomy than on mechanical appliances. He preferred separate grafts to one large one as the failure of one small one "to take" was a less evil than failure of the large and only one.

Dr. A. BRONNER (Bradford) inquired whether the heat generated by the use of the burr might be detrimental to the internal ear.

Mr. S. LODGE (Bradford) spoke of the formation of false membranes after the operation and the difficulty in keeping the *meatus sufficiently widely open.*

Dr. A. LOGAN TURNER (Edinburgh) considered that if packing was given up in the after-treatment the surgeon should inspect the ear more frequently himself and not leave it so much to the house surgeon.

Dr. R. H. WOODS (Dublin) spoke in favour of early training in the operation and the use of fewer instruments.

Professor V. DELSAUX (Brussels) spoke with reference to the after-treatment; a colleague of his had conducted the after-treatment without continuous packing with success. Personally he preferred not to lay down any hard-and-fast line.

The PRESIDENT (Dr. P. WATSON WILLIAMS, Clifton, Bristol) having briefly summed up the discussion Dr. McBRIDE and Professor HARTMANN replied. The former was in favour of Stacke's protector whilst the latter had been informed by the inventor that he had long discontinued using the instrument which he had designed.

Dr. BRONNER read a paper

On the Local Use of Formalin in the Treatment of Nasal Polypi before and after Operations on the same by the Usual Methods.

Dr. JOBSON HORNE inquired whether the possible danger of injuring the olfactory sense by the use of formalin in the treatment of nasal polypi was outweighed by the good results obtainable; he also asked whether it was desirable to intrust to patients the application of formalin of sufficient strength by means of sprays.

Dr. TILLEY thought that Dr. Bronner was making a too sweeping statement in saying that the majority of nasal polypi were caused by accessory sinus disease.

Dr. BRONNER replied that there was no objection to the application of formalin provided that the usual precautions were taken.

Dr. ARTHUR G. HAYDON (London) demonstrated photographs illustrating the familiar voice effects produced by the Singing Voice on a Suitable Medium.

FRIDAY, JULY 31ST.

Dr. F. DE HAVILLAND HALL and Dr. JOBSON HORNE opened a discussion on

The Upper Respiratory Tract as a Source of Systemic Infection.

Dr. de Havilland Hall brought forward evidence to show that typhoid fever might start in the larynx and referred to a case in his hospital practice in which the disease probably started in that organ and also to a case recorded by Dr. Watson Williams at the meeting of the British Medical Association in 1894. Infection was more likely to happen when the vitality of the laryngeal mucosa had been previously lowered by inflammatory mischief. He pointed to the initiatory symptoms of measles, influenza, and whooping-cough as clearly indicating that the virus of these diseases entered the system through the upper respiratory tract. Diphtheria was essentially a local disease at its commencement and the specific bacilli might enter at the nose, the naso-pharynx, the pharynx (which was the usual situation), or the larynx; the secondary symptoms were due to the absorption of toxic materials secreted by the bacilli during their growth. He had seen many cases of influenza in which infection appeared to have taken place in the naso-pharyngeal space and he was strongly of the opinion that adenoid vegetations rendered the individual more liable to contract influenza and many other infectious diseases. The same might be said with even greater emphasis of the faucial tonsils, and he thought that parents and others having the charge of children could not be too strongly impressed with the danger of allowing them to go about with adenoids and enlarged tonsils. Cases were quoted to show that the virus of scarlet fever might enter the system through a wound of the nasal mucous membrane. He considered that there was much to be said in favour of the view that tonsillitis was a primary infective disease of the lacunæ and that rheumatic fever was a secondary disease arising from the absorption of microbes or their products into the system. He emphasised the importance of the careful treatment of even slight tonsillar affections in view of the danger of systemic infection. Septicæmia, pyæmia, and erysipelas were shown to be diseases which certainly entered the system in many cases through the upper respiratory tract. The occurrence of primary tuberculosis of the nose, the pharynx, and the larynx, and the recognition of latent tuberculosis of the *tonsils, both faucial and pharyngeal, pointed to the possi*bility of the tubercle bacillus entering the system *viâ* the upper respiratory tract. Cases of syphilitic infection through primary sores in the nose, the naso-pharynx, the pharynx, and the larynx were mentioned.

Dr. JOBSON HORNE, after referring generally to the importance of the subject under discussion and to the vastness of the field it covered, said that he proposed only to invite consideration of a few diseases of obscure origin and insidious onset which at times—and he believed more frequently than was commonly thought—had their origin in the upper respiratory tract. The diseases specially alluded to were infective endocarditis, tuberculosis, lymphadenoma (Hodgkin's disease), and lymphosarcoma. The term "infective endocarditis" in its usually accepted and restricted sense, meaning the malignant, ulcerative, or septic phase of the disease, he said, was perhaps no longer tenable now that they knew all forms of acute endocarditis to be infective in nature. The cases, however, to which he was about to refer belonged to the more malignant and destructive variety in which the septic process was by no means confined to the heart but in which the stress of the disease was upon that organ. The part played by the faucial tonsils in rheumatic fever, and therefore in acute endocarditis, had already been submitted to them. He wished to draw attention to the larynx, a breach in the mucous membrane of which at times he had observed to be the site of entry of the parasite which brought about the destruction of the patient in malignant endocarditis. Cases were quoted and photographs shown in which the lesions in the larynx were so gross as to leave no doubt about it being the primary site of infection. The starting-point of the ulceration, he said, was in a fold of mucous membrane which commenced behind the vocal process and passed obliquely upwards and backwards to be lost between the summits of the cartilages of Santorini and Wrisberg. He found this to be a site which lent itself to infection in other diseases about which he spoke—there secretion was arrested and stagnated and there stress and strain were put upon the laryngeal mucosa so that a breach easily occurred in a weakened membrane. He referred to it as the "vulnerable spot" in the larynx. The upper respiratory tract as a source of tuberculous infection was considered under three headings. Firstly as a site of direct infection. The lesion might be the outcome of direct infection by the virus from outside the body as in primary tuberculosis of the nose, the fauces, the post-nasal adenoid tissue, the soft palate, the pharynx, the parotid gland, the tongue, the larynx, and the ear, all of such primary infections with the exception of the last being comparatively rare. On the other hand, the lesion in the upper respiratory tract might be the outcome of direct infection with sputum from the lungs, in which case, of course, the infection was a secondary one, of which tuberculosis of the larynx was a typical example. Primary tuberculosis of the larynx was so extremely rare that it was a negligible quantity. The diagnosis of such a condition for obvious reasons could only be based upon post-mortem evidence. In the course of ten years, whilst closely following the post-mortem examinations of a large general hospital, he had never met with a single case. From observations made post mortem he considered that he was in a position to make the following statements with regard to tuberculosis of the larynx: (1) when the larynx was infected with tubercle the disease was already established in the lung; (2) that by the time the disease in the larynx had advanced to ulceration the disease in the lung had advanced to cavitation; and (3) when the disease in the lung was confined *to the pure miliary form the* larynx was never infected. The deductions were that the infection of the larynx was by the sputum and that the so-called cure of laryngeal tuberculosis by means of surgical treatment was of little avail unless the disease in the lung had been arrested. Infection of the ear by the sputum he had recently dwelt upon in opening a discussion on the subject at the Otological Society of the United Kingdom. Speaking of the controversy about the relative potency of the virus of tubercle in its dry and moist forms, he said it was generally agreed that the propagation of the disease was to be attributed mainly to the particles of sputum from tuberculous patients. Cornet and his school held that the sputum was more dangerous when it became dry and pulverised. Flügge, on the *other* hand, maintained that the sputum was more infectious in its moist form, as in the spray produced in coughing and sneezing. Both the larynx and the ear were exposed to infection through the agency of an atmosphere charged with tuberculous dust, yet it was extremely rare to meet with tuberculosis primarily in the larynx by direct infection from the air inspired. It was equally rare to meet with tuberculosis in the ear starting from the external meatus. On the other hand, evidence had been adduced to prove that infection by the sputum directly from its mother soil to the larynx and to the orifice of the Eustachian tube was by no means rare. These facts, he considered, strongly supported the view advanced by Flügge. Tuberculosis when it occurred in the trachea was more marked in the posterior wall and in subjects of pulmonary tuberculosis who had become bedridden, which was explained by the prolonged contact of a tenacious agent such as sputum. Secondly, the upper respiratory tract might be a path of indirect infection in tuberculosis without any naked-eye or positive microscopic evidence being left behind to indicate the path of infection. Lymphoid tissue was the most vulnerable of all tissues to tuberculosis and yet it was most difficult to demonstrate tubercle bacilli in excised tonsils, post-nasal adenoid tissue, or lymphatic glands. That a systemic infection with tuberculosis did take place through the lymphoid ring of the upper respiratory tract was beyond question. The preceding considerations gave rise to the third proposition—the part played by the lymphoid tissue in modifying or arresting a systemic infection, which in turn brought the speaker to lymphadenoma or Hodgkin's disease. He recognised in the disease a histological entity but not a pathological one. He preferred to use the term in a comprehensive and non-committal sense. He regarded the disease as the outcome of an infection and produced evidence to prove that ulceration in the larynx at times was the site of entry of the infecting agent. The enlarged gland might be as much a manifestation of an effort on the part of the lymphatic system to prevent a disease—whether it be tuberculosis or anything else—as of disease itself. Lastly, he brought pathological evidence to show that thoracic lymphosarcoma might be part of a systemic infection and that the larynx might be the site of entry of the infecting agent. In conclusion Dr. Horne expressed the hope that one outcome of the discussion would be a wider recognition of the utility of laryngoscopy in general medicine.

Dr. J. L. GOODALE (Boston, Mass.) continued the discussion with a paper dealing with the histology of the tonsil in its relation to disease.

Dr. F. J. POYNTON (London) said that early experimental investigation in Germany demonstrated conclusively that a streptococcus might be present in the throat in diphtheria which would produce with some constancy a suppurative arthritis in animals. Dr. A. Paine and himself had made another step when they showed that a diplococcus could be isolated from a rheumatic angina which on intravenous injection would produce the lesions of rheumatic fever in the joints, heart, pleuræ and elsewhere, and which was present in the lesions of rheumatic fever in man. The stages in the process were: (1) the micro-organisms entered the fibrous framework of the tonsils and thence reached the minute blood capillaries and lymphatics and so the general circulation; and (2) the micro-organisms had been isolated from the blood in man and found in the local lesions. Thus it was established that a focus in the upper air passages might be the cause of a general infection. Local treatment of the upper air passages could only do a limited amount of good in infections of the rheumatic type, for each internal lesion was a local focus; every effort, however, should be made to arrest the process before it became generalised. It was not known why it was that micro-organisms, probably always present in the throat, suddenly became pathogenic. Infection from the throat might very probably occur without there being any appreciable local symptoms.

Dr. TILLEY limited his remarks to the part which the nose and naso-pharynx played as a source of general septic infection in two sets of circumstances. When a chronic purulent focus existed the general health might suffer in a very serious manner as a result of the constant absorption of the septic products from that focus. When operative procedures had been carried out in these regions very grave and even fatal results might ensue if due care had not been taken to provide for, and to maintain, cleanliness of the wounds.

Dr. D. R. PATERSON (Cardiff) spoke of tuberculosis arising in old cases of ozæna and also spoke of the bearing of the subject under discussion upon renal disease.

Dr. WOODS regretted that the mouth had not been included in the discussion and referred to pyorrhœa alveolaris as a source of general disturbance of health.

Dr. LOGAN TURNER spoke of obscure septic cases without obvious cause as possibly originating in some septic infection in the upper respiratory tract.

Dr. WILLIAM LAMB (Birmingham) said that the site in the larynx referred to by Dr. Jobson Horne as the "vulnerable spot" had been indicated as a site of infection in typhoid fever.

The PRESIDENT summed up the discussion and the openers replied.

TROPICAL DISEASES.

THURSDAY, JULY 30TH.

Sir PATRICK MANSON, K.C.M.G. (London), opened the discussion on

Trypanosomiasis

by briefly recapitulating the discoveries of the trypanosome parasites in men and animals. In searching for trypanosomes thin films of blood, stained by methylene blue, by thionine, or by Romanowsky's method, and examined by one-sixth of an inch objective, gave the best results. The clinical features of trypanosomiasis were usually absent in the native but in the European the disease gave rise to an undulant type of fever, accompanied by œdema, circinate erythema, muscular weakness, irritable pulse, anæmia, frequently enlarged spleen, and choroiditis, iritis, cyclitis, or optic neuritis. Sir Patrick Manson stated that possibly some of the more obscure tropical ailments, such as sleeping sickness, kala-azar, and certain forms of enlarged spleen, might be due to trypanosome parasites in the blood. The recent discovery of Castellani of trypanosomes in the cerebro-spinal fluid of persons suffering from sleeping sickness was important. The points of favour of these being associated as cause and effect were: (1) that, in Uganda at any rate, the two were frequently associated; and (2) the presence of the parasite in connexion with the nervous system. Against the idea that the trypanosome caused sleeping sickness it might be argued: (1) that, although Europeans suffered from trypanosomiasis, they did not get sleeping sickness; and (2) on the Congo and in West Africa trypanosomes had not been met with in patients suffering from sleeping sickness. The interval between infection with trypanosomes and the appearance of symptoms of sleeping sickness lasted sometimes for months or even years, but this did not completely negative the association of the parasite and the illness, for in such diseases as leprosy, malaria, and tuberculosis a similar history obtained. Sir Patrick Manson was not inclined to consider that the trypanosome in the cerebro-spinal fluid of the African was the cause of sleeping sickness. The inoculating agent might be a glossina, a tabanus, a stomoxys, or even a tick. The disease known in different parts of Africa as carrapato was produced by a tick and might or might not be a trypanosomal disease.

Dr. CUTHBERT CHRISTY (Liverpool) read a paper on

The Distribution of Sleeping Sickness and its Relation to Filaria Perstans and to Trypanosomiasis.

In Uganda, whilst serving in the Royal Commission expedition, he found sleeping sickness confined to a narrow strip of coast along the north-west and northern shores of the Victoria Nyanza lake, extending in all about 250 miles as far eastward as German East Africa. Filaria perstans was not the cause of sleeping sickness, for he met with the disease at least 100 miles beyond the extreme eastern limit of the area infected by the filaria parasite. The connexion between the presence of glossina (tsetse-fly) and sleeping sickness was such that there might be a causal relationship. It was the agricultural districts in which the parasite and the disease were more frequent, for in towns it was known that sleeping sickness was infrequent and the tsetse-fly avoided villages, objecting evidently to fæcal odours.

Dr. J. EVERETT DUTTON and Dr. J. TODD (Liverpool) communicated a paper dealing with

The Human Malady Trypanosomiasis.

They stated that they had examined 1000 persons on the Gambia and found the trypanosoma in seven persons (six natives and one quadroon). The blood infections were slight and the signs and symptoms of the disease were mild. In some cases lymphatic glands were enlarged and the spleen in young persons. Trypanosomiasis seemed to occur in both young and old people.

Dr. CHRISTY related his discovery in Uganda and its neighbourhood of the dangerous tick,

Ornithodoros Moubata (Argas Moubata, Murray),

known to the natives as the *bibo*, and previously recorded only from the Zambesi and Angola in West Africa. He found it commonly in the dust on the floors of the rest huts built for porters and in the houses of the natives. He showed specimens of the tick and gave an account of the severe symptoms occasionally following its bite and made the suggestion based upon its distribution and certain observations that it might possibly turn out to be the intermediary host of filaria perstans. Dr. Christy then read some notes furnished him by Mr. R. J. Pocock, the arachnologist to the British Museum, to whom he had submitted his specimens, in which some interesting points in connexion with his discovery were dwelt upon.

Dr. A. CASTELLANI (Florence) said that in Uganda in November, 1902, he had first noticed a trypanosome in the cerebro-spinal fluid of patients suffering from sleeping sickness and that in control cases he had never found the parasite in the fluid. It was possibly a different species of trypanosome to the trypanosoma Gambiense. The subjects of sleeping sickness seemed more liable to become infected by some parasites than were healthy natives, for in them, for instance, filaria perstans was frequently found, but the filaria was only found in the blood, never in the cerebro-spinal fluid. As horses were affected by five different forms of trypanosomiasis—namely, surra, nagana, mal de Caderas, dourine, and the form recently described by Dutton and Todd—it was possible that man might also be liable to infection by different species of trypanosomes, each causing different signs and symptoms. The mononuclear leucocytosis described by Mott and Low occurring around the vessels of the brain in sleeping sickness seemed to favour a protozoal origin of the disease. Dr. Castellani held that sleeping sickness was due to a trypanosome as (1) the parasite was constantly, or almost constantly, present in the cerebro-spinal fluid; (2) it was never found in other diseases; and (3) the pathological changes seemed to favour the conclusion that it was a trypanosomal disease.

Dr. L. W. SAMBON (London) stated that according to E. Brumpt the natives of Kilimandjero and the Galla country feared the bite of a tick which was probably the ornithodoros moubata and Dr. Christy's observation as to the peculiar
ighbouring
, however,
perstans.
The long incubation period of sleeping sickness did not negative the possible trypanosoma origin of the disease, as in several diseases due to protozoal parasites they found the same. Dr. Sambon considered that the patchy distribution of sleeping sickness along the margins of rivers and lakes agreed with the peculiar distribution of tsetse flies. He thought that the limitation of tsetse flies to the neighbourhood of water found its explanation in the feeding habits of certain freshwater fish, many of which were amphibious, retiring into burrows during the dry season and feeding at night on grain and insects. Trypanosomes were common in fish and especially amongst those living in mud. The trypanosomes of fish resembled those of mammals and the natives of
gambla, Congo, &c.) ascribed
sting of a fish or to eating fish
the trypanosoma Castellanii,
those of nagana and surra were apparently identical, still it was possible that they belonged to different strains of biological species. It had been shown that the trypanosome of nagana was modified considerably when passed through certain hosts.

Dr. G. C. LOW (London), a member of the recent commission sent to East Africa to investigate sleeping sickness, said that (1) in British Guiana he found that 50 per cent. of the aboriginal Indians had filaria perstans in their blood, but no sleeping sickness existed there; (2) in Uganda, when Dr. Low arrived there, Dr. A. D. P. Hodges and Dr. Wiggins had already demonstrated the fact that there were no cases of filaria perstans in Kavirondo, where sleeping sickness was prevalent. Filaria nocturna had its habitat in the lymphatic system, filaria perstans in the mesentery. The theory that the embryos of the filaria collected in the cerebral capillaries and thereby set up the sleeping sickness had no foundation in fact, and the theory that the poison was due to a toxin was improbable. As regards the presence of trypanosomes in the cerebro-spinal fluid causing the disease it must be remembered that many other parasites were also met with in natives besides trypanosomes, which served to complicate the diagnosis of the cause and necessitated care in arriving at a conclusion. In lower animals the pathological changes caused by trypanosomes did not justify by analogy the conclusion that these parasites in man set up the pathological conditions met with in sleeping sickness. The post-mortem macroscopic appearances of the meningeal changes in sleeping sickness closely resembled ordinary septic meningitis. On closer examination, however, it was seen that the exudation showed mononuclear leucocytoses in the perivascular spaces in the former and polymorphonuclear leucocytoses in the latter and not in the perivascular spaces specially. Regarding the theory of Dr. Christy that argas moubata was the host of filaria perstans it might be mentioned that Dr. C. W. Daniels had shown that this parasite did not exist in British Central Africa. In British Guiana, on the other hand, there was no argas moubata, but filaria perstans were plentiful. Dr. Sambon's statement that the tsetse fly was always found near water was at variance with Mr. F. J. Jackson's observations that the fly was met with in areas that were perfectly dry and covered with scanty bush.

Captain LEONARD ROGERS, I.M.S., objected to the view of regarding kala-azar as a trypanosome disease. He thought it impossible to recognise trypanosomes by so-called involution forms. He had examined several hundreds of cases of kala-azar but had never found a trypanosome. A characteristic feature in kala-azar was the peculiar melanotic pigmentation invariably found in the organs. Such a pigmentation was proof of an endoglobular parasite. The trypanosome lived in the plasma. In surra no melanotic pigmentation was produced by the trypanosome.

Fleet Surgeon P. W. BASSETT-SMITH, R.N., read a paper on

Five Cases of Abscess of the Liver.

Three of the cases recorded were operated upon by Surgeon G. Kirker, R.N., successfully by abdominal or trans-thoracic incisions. All the patients had had dysentery previously. Fleet Surgeon Bassett Smith also drew attention to the importance of recognising the presence of leucocytosis as an aid in the diagnosis of the presence of pus.

Mr. JAMES CANTLIE (London) stated that during the past two years he had operated upon ten cases of abscess of the liver, and at one period, in August, 1902, had seven cases of abscess of the liver at one time under his care, showing how much more prevalent hepatic abscesses were in England than might be expected. He had now used the trocar and cannula and syphon drainage in some 50 cases of this disease and he strongly condemned trans-thoracic incision or laparotomy for *deep-seated* abscess of the liver as being over-heroic and likely to cause young or inexperienced surgeons to put off operation until too late. He had seen so much of this lately that he regretted that teachers of surgery should advocate an operation which their pupils would not care to undertake (until too late) and condemn a simple operation which was more efficient, safer, and could be done by a medical man single-handed. The last point was one of great importance as abscesses of the liver were frequent in out-of-the-way parts of the world, where hospitals were but ill equipped and where neither nurses nor skilled assistance could be obtained. To tell a man in such a position that the only operation for abscess of the liver was opening the pleura, excising a piece of rib, opening the peritoneal cavity, and then searching for pus deeply seated in the liver tissue was to condemn the practitioner to non-interference or his patient to death.

Captain ROGERS read a paper on

Biliary Abscesses of the Liver, with an Operation.

By biliary abscess Captain Rogers meant abscesses in the liver within the bile ducts, sometimes called "suppurative cholangitis." The difficulty of diagnosis in such cases was great. The history given was usually that of enlarged liver, fever, and repeated attacks of jaundice. In one case in Calcutta Captain Rogers found the gall-bladder filled with calculi and a large number also in the right hepatic duct; these were removed and the wound was drained but the patient died. Post mortem the bile-ducts were full of pus which had burrowed backwards and upwards, invading the right lung. He considered that were cases of the kind operated upon at a fairly early stage good results might be anticipated.

FRIDAY, JULY 31ST.

Discussion on Leprosy.

Mr. JONATHAN HUTCHINSON (London) stated that an overwhelming body of evidence was opposed to the belief that leprosy was spread by any ordinary mode of contagion, such as by the breath, touch, clothes, bites of insects, wounds, &c. Hereditary transmission had rarely if ever been proved. That the food taken from the hands of lepers—commensal communication—caused leprosy might occur occasionally but was extremely rare. As in Mr. Hutchinson's opinion leprosy, in countries where the disease was not common, was not inherited or contagious but arose *de novo*, the cause must be sought for in some article of diet and there was no other article of food which could be reasonably suspected except fish. Tainted, improperly cured, or uncooked fish he had proved to be an article of diet in all communities in South Africa and India where cases of leprosy occurred, and he advanced very telling instances of individuals in non-fish-eating communities who had become affected after consuming such fish. Mr. Hutchinson drew attention to the prevalence of leprosy in Roman Catholic communities owing to the fast days imposed, when fish was the food. He appealed strongly against confining lepers in leper homes; the cruelty of compulsory segregation was wholly unnecessary and unjustifiable as leprosy was not communicated by contagion.

Dr. P. S. ABRAHAM (London) said that he agreed with Mr. Hutchinson in condemning those terrible leper prisons like Robben Island. That early cases of leprosy should be segregated by compulsion was a transgression on their common humanity. As tubercle was contagious, so, he believed, was leprosy, but in no other sense. Dr. Abraham read a letter from Dr. Ehlers in which the great Scandinavian authority on leprosy said: "What is 'badly cured' and what is 'well cured' fish? There must be something in the fish (bacillus, poison, or what?) which causes leprosy if Mr. Hutchinson's idea is correct." Dr. Ehlers ascribed the decrease of leprosy in Norway to segregation. In several parts of the world certain kinds of fish were accredited by the natives with causing leprosy, but did Mr. Hutchinson condemn all fish in his hypothesis?

Sir PATRICK MANSON disagreed with Mr. Hutchinson's theory regarding fish as a cause of leprosy and held that the discussion of such a proposition without a scientific basis was mere waste of time.

Dr. F. M. SANDWITH (Cairo) stated his experiences of leprosy in Egypt and agreed as to the non-hereditary character of the disease and to the small danger from contagion, but he could not altogether accept stinking fish as the cause of the disease.

Mr. J. D. HILLIS (Dublin) dissented from the etiological relationship of fish to leprosy. He had after due consideration and, largely in the interests of the lepers themselves prevailed upon the Government of British Guiana to carry out a form of segregation and he condemned the campaign against leper asylums.

Dr. SAMBON considered that the peculiar geographical distribution of leprosy, its steady increase in certain regions and its decrease in others, and its sudden appearance and rapid spread in islands and countries previously immune were all facts which could not be explained in Mr. Hutchinson's fish theory. He considered that leprosy was stamped out from almost all European countries by the strict laws inforced against lepers in the Middle Ages.

Mr. CANTLIE believed that lepers in the later stages of the disease were contagious. He had known leprosy to be contracted by a daughter nursing her leprous father (European), and also of a European who contracted leprosy from sleeping beneath the same blanket with his Chinese leper servant on board a house-boat. On the other hand, he had seen a woman who had lived in the leper village in Canton and had married three leper husbands yet was she free from the disease. In support of Mr. Hutchinson's theory as to the insufficiency of salt being associated with imperfect curing of fish, it was a fact that whereas the northern portion of China was well supplied with salt and there was no leprosy, except in Shantung, in the southern part salt was scarce, having to be imported from the north, and in these regions leprosy was rife.

Major A. G. HENDLEY, I.M.S., read a paper on

Lathyrism

was observed by him in India. Lathyrism was a disease of the nature of an intoxication with a spastic spinal paralytic course which was attributable to poisoning with various kinds of the family of *Papilionaceæ*—e.g., *lathyrus sativus* (chick-pea or common pulse) (Scheube). In July, 1893, Major Hendley first saw the disease in India, but in 1896-97, during the famine, it became general amongst the poorer agricultural labourers. He believed that the lathyrus only predisposed to cause lathyrism and that exposure to wet and cold was required actually to excite the sudden seizure of paralysis.

Dr. H. MARCUS FERNANDO (Colombo, Ceylon) read a paper on

Tropical Malaria and its Properties.

In Ceylon malaria was prevalent over the whole of the low country and especially on the north and east of the island; its periodical outbursts bore a marked relation to the seasonal rains. Æstivo-autumnal (tropical) fever was the most prevalent variety, constituting 99 per cent. of all malarial fevers in Ceylon. The benign tertian and quartan fevers were so rare that it was possible that they were altogether importations. In Ceylon the great hindrance to prophylaxis was the cultivation of rice, owing to the mosquitoes breeding in the water used for cultivation; in Italy the Government had forbidden the cultivation of rice within four miles of human habitations.

Dr. H. D. MCCULLOCH (Secunderabad, India), brought forward

A Plea for the Proper Medical Supervision of Refreshments purveyed on Railways in the Tropics, with special reference to India, and for Better Latrine and Lavatory Accommodation for the Travelling Indian Public.

The introduction of railways into India had opened up a means of diffusing disease which closely affected the public health of the country. Dr. McCulloch pointed out the necessity of adequate medical and sanitary staffs on the Indian railways and also in the mercantile marine. On railways the aerated waters supplied either in the train itself or at the stations were made with unfiltered and unboiled water and therefore they were apt to carry infection. He also put in a strong plea for having properly trained nurses on the large passenger vessels going to and fro between Great Britain and tropical countries.

Mr. CANTLIE read a paper upon

Plague in Domestic Animals

in which he drew attention to Dr. W. J. R. Simpson's and Dr. W. Hunter's experimental work in Hong-Kong in 1902. He drew attention to the fact that in June, 1903, two fowls, a duck, and a quail were found in the Hong-Kong market suffering from plague. This fact, combined with the experimental proof that fowls, geese, turkeys, pigeons, rats, cats, dogs, pigs, goats, sheep, and buffalo calves, &c., contracted the disease when fed on plague-infected material, indicated a most serious state of affairs for any plague-infected town or district. Practically all domestic animals might suffer from the disease: hence, no doubt, the persistent endemicity attaching to plague, for if the animals in the farmyard, the stable, and the byre were all polluting the soil, &c., with plague germs, the continuance of the disease was certain. Natives of Oriental countries—and, for that matter, in countries nearer home—had frequently the fowls and animals under the same roof and therefore they both became liable to intercommunication of diseases. They had been assigning to rats solely the power of spreading plague, but the rat was only one of many infected animals, and whilst guarding their ships from rats from the plague-infected shore they had been importing the disease in fowls, pigs, or by way of any animal taken on board for food.

Dr. J. R. DICKSON (Trinidad) and Dr. C. F. LASSALLE (Trinidad) sent a communication entitled

Varioloid Varicella in Trinidad.

This disease, which had prevailed in Trinidad for some time, was at first considered to be varicella. The incubation period varied from ten to 15 days. The invasion was marked by general muscular pains, fever, and headache; the eruption usually appeared on the fourth day of the illness as papules which then became vesicular, pustular, and finally desiccated and desquamated. The rash as a rule appeared on the extremities, the face, and the back of the body, but the palms of the hands and the soles of the feet were frequently involved. The first case occurred in the St. Anne's Lunatic Asylum on April 16th, 1902. In May of the same year other cases occurred within the asylum and in other parts of the island. The outstanding features of the disease were (1) its atypical character; (2) the occurrence of a second attack in persons recently recovered from the disease; (3) the successful vaccination of persons recently recovered from the disease; and (4) attacks occurring in recently vaccinated persons.

Dr. G. C. LOW said that he had seen this disease in the West Indies and had no hesitation in pronouncing it to be small-pox.

Dr. W. BRIGGS CLARKE stated that during an outbreak of small-pox in Barbados the authorities in Trinidad were concerned about an eruptive fever which was pronounced not to be small-pox. Ships were allowed to call at Trinidad and several men-of-war had small-pox on board after they left the island. Mr. J. F. E Bridger was sent by the Government of Barbados to report on the fever prevailing in Trinidad; he had sent a full report and Dr. Clarke showed some of the photographs of the disease taken by Mr. Bridger. These spoke for themselves and appeared to represent cases of small-pox.

THE PATHOLOGICAL MUSEUM.

LAST year in noticing this collection we felt constrained to remind our readers of the original intentions of the founders of the Pathological Museum of the British Medical Association and to express regret that these had been allowed to lapse owing, amongst other causes, to the growth and separation of its quondam partner—the Exhibition of Trade Products. We congratulate the secretaries of the Pathological Museum on their attempt to re-establish the museum in the position which it used to occupy, and if the distance of Swansea from the larger teaching centres be taken into consideration the results achieved, with certain reservations to be mentioned shortly, are some of the best that have been accomplished of late years. The arrangements reflected great credit upon the local secretaries, Dr. Daniel E. Evans (Swansea) and Dr. Newman Neild (Clifton), who must have worked very hard to collect, to arrange, to catalogue, and to label (a point specially deserving of mention in this exhibition) the material exhibited. The room selected this year was, it is true, fairly adequate in size and conveniently situated in relation to the meetings of the Pathological Section, but it was some distance away from the central position occupied jointly by the Trade Exhibition and the Reception Room.

The older methods of studying pathology depended upon the observation of disease during life and in the dead house and among these methods the making and preservation of morbid anatomical specimens showing the effects of disease occupied a prominent place. With the introduction of the biological and chemical methods of experimental research into the causes of morbid processes the older methods are in danger of falling into disuse. We were glad therefore to notice that a fair proportion of space in the museum was devoted to wet morbid specimens. But rightly regarded observation and experiment are really handmaids, each checks, corrects, and assists the other in the elucidation of nature's truths and in the combat with disease. To be complete, therefore, a pathological exhibition should embrace exhibits relating both to methods of observation and to the experimental data of bacteriology, chemistry, and biology. The collection of this year, however, illustrated only the former of these two great divisions.

Among the wet specimens was an interesting series of aneurysms chiefly involving the aorta in various situations, exhibited by Staff Surgeon P. W. Bassett-Smith, R.N., (Haslar), and the careful descriptions printed in the catalogue not only added interest to these but helped to explain the obscure and insidious nature of this malady. In No. 8 (an intrathoracic aneurysm of the aorta ruptured into the left pleural cavity) it was mentioned that "the symptoms were obscure, chiefly bronchitis and pain. The course was a chronic one, but death was rapid after the rupture," and this might form a not inappropriate comment on many such cases even when they come under the notice of an acute and accurate clinical observer. Dr. Newman Neild exhibited several specimens from the museum of the Bristol General Hospital. Two of these, Nos. 2 and 26, were the heart and lung from a syphilitic patient. In the first there was a dense band of fibrous tissue compressing the left pulmonary artery and left auricle. The lung showed the extension of the fibrous tissue into its substance. The patient did not improve under iodide of potassium as would be expected in syphilitic fibroid lesions. Syphilitic lesions in these situations are undoubtedly somewhat rare, but probably not so rare as is generally supposed in patients who die from what is called syphilitic cachexia. It was Sir Samuel Wilks who first brought before the profession the connexion between syphilis and fibroid disease of the heart in 1856[1]; and a paper on some other syphilitic changes in the heart wall was published by Dr. Sidney Phillips in THE LANCET in 1897.[2]

Dr. F. J. Poynton (London) and Dr. A. Paine (London) exhibited specimens from animals in which endocarditis and joint lesions of a rheumatic type had been experimentally produced by inoculation with the diplococcus of rheumatic fever and these were accompanied by some exquisite drawings. Several exhibits were contributed from the museum of St. Mary's Hospital, London. One of these, No. 25 (arrested tuberculosis of the lung in a woman, aged 38 years, who died from carcinoma of the uterus), served to raise speculations in the mind as to the incompatibility which is sometimes alleged to exist between these two fatal morbid processes. Mr. W. F. Brook (Swansea) exhibited several interesting specimens mainly of surgical interest. One of these illustrated amongst other things the dangers of a dislocated kidney. It was labeled "pyonephrosis and atrophy of a moveable kidney due to kinking of the ureter, associated with papilloma of the ureter at the entrance into the bladder." The symptoms were chiefly those of cystitis and in November, 1900, a double kink in the ureter, caused by the kidney falling forward and undergoing rotation inwards, was corrected by nephrorrhaphy and in March, 1901, nephrectomy was performed for persistent fistula. The patient was a woman, aged 50 years, and had made a complete recovery.

The space allotted to diseases of the spleen was of interest, especially to those members who had attended the discussion on splenic anæmia in the Pathological Section on July 31st. Dr. R Salusbury Trevor (London) exhibited six wet specimens of splenic diseases; three of these were taken from cases of splenic anæmia, one from a case of cirrhosis of the liver, one from a case of lymphadenoma, and one from a case of lymphatic leukæmia. Considerable alteration has taken place in our views of these diseases in late years. 1. Lymphadenoma (Hodgkin's disease) has enlargement of the glands, slight anæmia, with leucocytosis, and the spleen is but little enlarged. 2. In leukæmia of the lymphatic variety there is but little enlargement of the glands, but there are marked leucocytosis (due chiefly to increase of the lymphocytes) and definite splenic enlargement. In leukæmia of the splenomyelogenous variety there is no glandular enlargement, but the leucocytosis is characteristic with myelocytes and increase of the eosinophile cells, and very marked splenic enlargement is present. 3. In splenic anæmia there are enlargement of the spleen, progressive anæmia without leucocytosis, and a tendency to hæmorrhage, especially gastro-intestinal; cirrhosis of the liver supervenes with ascites, when the disease corresponds with "Banti's disease." Microscopic sections of the different specimens were also exhibited and demonstrated very clearly the differences of the nature of the splenic enlargement in each case. The sections of splenic anæmia showed fibrosis affecting the reticulum, atrophy of the Malpighian bodies, and widespread endothelial proliferation. The section of lymphadenoma showed great overgrowth of the Malpighian bodies, while the section devoted to leukæmia showed increase in the lymphoid elements of the organ and a diffuse lardaceous change.

Several specimens of tropical diseases were exhibited. Thus No. 80 was a specimen of elephantiasis scroti from India and No. 79 the fifth toe from a case of ainhum (from South East Africa)—a curious disease affecting the natives of that part in which the little finger and fifth toe on one or both sides of the body become the seat of a progressive constriction which by-and-by results in spontaneous amputation.

---

[1] Transactions of the Pathological Society of London, 1856.

[2] THE LANCET Jan. 23rd, 1897, p. 223.

The changes in the blood in sprue (mainly nucleation and irregularity of the red cells) were illustrated by a series of microscopic specimens shown by Staff Surgeon Bassett-Smith. He also showed a specimen of the small intestine from a case of sprue in which the intestinal wall was so atrophied as to be almost transparent.

Mr. Jonathan Hutchinson (London) exhibited a series of drawings selected from those added to the Polyclinic Museum during the past year and if the same principle were more extensively followed by others it would greatly add to the interest of the annual museum of the Association. No. 163 represented a tertiary syphilitic eruption on the forehead and illustrated the fallacy of relying on the history of the primary malady in this disease; a history was entirely wanting in this case, though the eruption rapidly disappeared under anti-syphilitic treatment. No. 170 was a sketch of the middle finger of the left hand in which there was a hole through which a cedar-pencil might have been thrust, the parts being otherwise perfectly sound and having been so for many years. The condition was the result of necrosis in early life, several bones having been affected; a shell of new bone had surrounded the necrosed portion with a large cloaca on each side, the history pointing to tuberculosis. The sequestrum was no doubt allowed to remain long in place, and meanwhile a strong bridge of new bone had formed in the palmar aspect which refused to bend backwards when finally the dead portion was taken away. No. 179 was a sketch of a group of lupoid tubercles near a vaccination sore, indolent, hard, of yellowish-brown tint. The patient was vaccinated in April in three places and went to Mr. Hutchinson in October. The spots had appeared soon after the vaccination. His mother had died from pulmonary tuberculosis and a brother suffered from it. The patient had had syphilis three years before and it was supposed that in this case syphilis and tuberculosis co-existed. Certain of the drawings exhibited by Mr. Hutchinson illustrated Eastern diseases and were doubtless collected during his Indian tour. There were several portraits illustrating leukoderma in different races. If to this series another portrait of a case of that curious disease pinta could have been added for purposes of comparison with leukoderma it would have increased their interest.

A large series of radiograms were arranged round the room, exhibiting many varieties of bone disease. The largest proportion of these were exhibited by Mr. Robert Jones (Liverpool) and illustrated coxa vara, various forms of hip disease, fractures, and dislocations. Dr. Alfred Eddowes (London) exhibited several interesting coloured sketches of skin diseases, adopting the commendable plan of placing a sketch of the histological features of the eruption beside a coloured photograph of the patient, though we cannot altogether approve of the cumbrous name selected for one of his cases—streptogenic-necrogenic-folliculo-adenitis. The microscopic appearances of the lesion in this case were somewhat suggestive of acne necrogenica. Both Mr. Hutchinson's and Dr. Eddowes's sketches were neatly labeled with particulars of the cases. If other observers would follow their example and bring forward selected examples from their stores of illustrations they would enhance the value and attractiveness of these annual exhibitions.

We would urge future organisers of the Annual Museum to endeavour to make of pictures a prominent feature in the division relating to methods of *observation*. To the great majority of intellects things seen are much more easily comprehended than things heard or read of, and in quite nine-tenths the visual memory, the memory for forms and colours, is far more retentive than the auditive or other sub-varieties of memory. If to this were added on the *experimental* side bacteriological specimens and their products (briefly and lucidly described), with recent methods and instruments used in serum-therapy; and, finally, if a third department in which a few approved modern scientific methods of treatment, such as the x rays, Finsen's light, or treatment by radium, were exhibited at work, the museum would form one of the most attractive features of the meeting, especially if it were centrally situated in an easily accessible position. It would constitute a valuable addition to the scientific work of the Association and would thus fulfil the beneficent intentions of its founders. It would cease to be a mere receptacle for archives but would become a true pathological collection, speaking of progress to the whole of the medical profession and marking "footprints on the sands of time."

Looking Back.

FROM

THE LANCET, *SATURDAY*, AUGUST 20, 1825.

ST. THOMAS'S HOSPITAL.

Curious case of (Carcinomatous?) Disease of the Heel.

Under the sweeping term Carcinoma, a variety of malignant diseases are classed, without any reference to the true definition of Carcinoma; the disease, however, in the case we are about to describe, has some of the essential characteristics of Cancer.

W. Fry, ætat. 48, a sailor, was admitted on March 31, under the care of Mr. TYRRELL. At the time of admission he had an ulcer about the size of a sixpence on the back part of the heel; the edges of the sore were everted, the discharge was offensive, and the integuments immediately around the part felt tuberculated or knotted. The patient stated that the ulcer was occasioned by his pulling a piece of skin off the heel three months before he came to the hospital; he had tried various remedies with a view of healing the ulcer, but all alike failed in producing any amendment. The knotted bodies in the integuments round the ulcer continued to enlarge; and the present mass of disease about the heel is of the size of a small fist, and consists of a number of round tumours of different sizes, (the largest being of the size of a walnut,) some of them in a state of ulceration, and others approaching to it; these round bodies are very hard, and are so numerous, that at their bases they appear united, but as they enlarge are quite distinct and separate. When the tumours ulcerate, an excavated sore is formed with shelving edges, as if a piece of the tumour had been cut out; the discharge is fœtid, and the sores frequently bleed profusely; the glands in the groin are much enlarged, and the absorbents on the inside of the leg are indurated. The patient's health has suffered much from the disease; he looks cachectic, and has much pain, which prevents him from sleeping.

The treatment employed when he was first admitted into this hospital, was the application of soap plaster and bandage to the heel; afterwards, a strong solution of nitrate of silver; he now applies to the heel a watery solution of opium, and over this a linseed meal poultice, and he takes five grains of Plummer's pill, and one grain of opium every night.

We are not aware of any surgical author who has treated of this peculiar form of disease; it is indeed a disease of rare occurrence, and very few cases have been seen at the Borough hospitals: two or three cases have fallen under the care of Mr. TRAVERS, in one of which, we believe, amputation below the knee was performed, and fungous tumours arose from the stump; the final result of this and the other cases we do not know. We may not have been felicitous in the description of this disease, but there is such a peculiarity in its appearance, that it will scarcely admit of verbal description. It has been said this disease originates from a peculiar structure, which may be found between the tendo achilles and bones of the heel; but we have seen one case in Guy's Hospital in which the disease was in the wrist: it probably has its origin from aponeurotic or fascial structure; like fungus hæmatodes it bleeds profusely, but does not grow in the rapid manner peculiar to that disease, and moreover, the tumours have a scirrhous hardness.

CIGARETTES ON TRAINING SHIPS.—Captain Tufnell of H.M.S. *Boscawen* is endeavouring to check the excessive use of cigarettes among the boys of the training ships at Portland. On several occasions the tobacco shops of the island have been placed "out of bounds," but at the request of the shopkeepers the restrictions were relaxed. Repeated warnings from the authorities were unheeded and eventually the whole of the island was placed "out of bounds." On August 14th a deputation of the district council appealed to Captain Tufnell to remove these restrictions and eventually Captain Tufnell decided to do so, with the exception of public-houses and shops that have tobacco licences. Captain Tufnell informed the deputation that if these privileges were abused all the training ships would be removed from Portland.

THE LANCET.

LONDON: SATURDAY, AUGUST 22, 1903.

The Work of the Government Laboratory.

THE annual report of Dr. T. E. THORPE, the principal chemist of the Government laboratory, contains matters full of interest to the community. To some extent it is an annual index of the nation's integrity, or want of that virtue, for its pages show amongst other things in what direction ingenuity and deceit are practised, and with what measure of success, in relation not only to the Revenue departments but also to the sale of foods and drugs to the public. The work of the Government laboratory has grown enormously during recent years and Dr. THORPE is to be congratulated on the thorough manner in which he and his staff have met the increasing demands on their time and ability. Not very many years ago the work of the chemists of the old Somerset House laboratory referred almost exclusively to matters of revenue. Now at the new Government laboratories in Clifford's Inn-passage, in addition to the special laboratory examinations involved by the effectual control of the Customs and Excise departments, quite a large number of samples are sent in for examination by the great Government departments—the Board of Agriculture, the Local Government Board, the War Office, the Admiralty, the Board of Trade, the Commissioners of Works, the Home Office, the India Office, the Post Office, and Trinity House. During the past year ended March 31st, 1903, no less than 6588 samples were examined at the instance of these departments. Amongst the samples from the Commissioners of Works we may note with satisfaction that a specimen of the water from the fountain basins of Trafalgar-square was examined. We have called attention to the dirty state of the fountains in Trafalgar-square.[1] We hope, now that the matter has been officially inquired into, that a stigma on "the finest site in Europe" will be permanently removed.

The resources of the Government laboratory during the past official year have been somewhat strained owing to the imposition of the Corn Duties in April, 1902, by which not only is duty charged upon raw grain or flour but also upon the numerous manufactured products derived from cereals and used both for food and for industrial purposes. In the Excise section, again, increased work was occasioned by the examination of the materials used in the brewing of beer with regard to their possible contamination with arsenic. It is satisfactory to find that of 1173 samples of beer wort and brewing materials tested the great majority were either quite free from the poison or contained only traces. In 44 instances, however, the amount was so notable that the brewers were informed, in the case of materials, that they should not be used, and, in the case of wort or beer, that the product should not be sent out for consumption. In this connexion a sample of a substitute for hops, known as "hop compo," proved to contain not only a quarter of a grain of arsenious oxide per pound but also 35 grains of oxide of antimony. It was subsequently discovered that the maker of this compound was a druggist who did also a large business in veterinary medicines and that some of the vessels used in making "horse powder" had been used in making the hop substitute. Hence the antimony. This special branch of analytical work has led Dr. THORPE and his assistants to devise a special apparatus for the estimation of small quantities of arsenic. The method, depending upon the electrolytic production of hydrogen, has been described in THE LANCET.[2] The work of control carried out by Customs officers is reaching such a state of efficiency that they are even equipped with physical apparatus for determining sugar. Thus sugar, both imported and exported, is now tested locally by officers instructed in the use of the polariscope at most of our important ports. The local tests are checked by the selection of certain of the samples for control testing in the head laboratory, and the results of these tests show that the testing at the out ports is satisfactory.

In regard to sugar and molasses in particular the Government laboratory report this year forms, we think, an interesting commentary upon the statements which the Chancellor of the Exchequer made in answer to questions put to him during the last Parliamentary session touching the subject of false description in the spirit trade. Mr. RITCHIE, in the House of Commons on May 18th,[3] was asked by Sir EDWARD STRACHEY the following question: "Whether he was aware that German spirit made from potatoes and roots was imported into this country and sold as Scotch or Irish whisky and that under the existing methods of supervision any potable spirit, German or otherwise, could be made up and sold as genuine whisky and that English spirit made largely from molasses was shipped from this country to France and returned and sold as brandy." To this Mr. RITCHIE replied: "I am aware that allegations in the sense indicated have been made, but I have no official knowledge that would enable me to confirm or to refute such allegations." Dr. THORPE, writing as the official chemist to the Government, now states on p. 2 of his report (which, be it remembered, relates to the official year ending March 31st, 1903): "In consequence of the duty on grain an additional penny per proof gallon was placed upon plain spirits and compounds (such as imitation rum) made therefrom. Much of the so-called 'brandy' also consists mainly of plain spirit from grain or potatoes flavoured to represent more or less closely the genuine article." Again, on p. 6 of the report he writes, "These [referring to molasses] are sent from British refiners to distillers in the United Kingdom." The "allegations" of which Mr. RITCHIE said that he had no official knowledge that would enable him to confirm or to refute them, were at the time known to be well founded by the principal chemist of the Government laboratory. Dr. THORPE further states in regard to molasses that "all the samples examined were found to be satisfactory." Now it is well known that beet molasses contain a very large percentage of substances of a basic and quasi-alkaloidal nature. Only recently a short communication was presented to the Royal Society by Dr. A. D. WALLER and Mr. H. G. PLIMMER which showed conclusively that beet sugar contains a decided amount of betaine which has a well-marked though not very powerful poisonous action. If that is so, however, in regard to beet sugar it is more than likely that the residues or dregs of beet sugar—that is beet molasses—would contain a still larger quantity of these poisonous basic or alkaloidal substances. As a matter of fact, commercial betaine was found to be much more active than pure betaine. Moreover, these toxic substances pass over with the spirit during distillation, from which it is impossible to remove them by any known process. The Government laboratory report is silent upon this important point; it is only stated that the samples were found to be satisfactory and we take it that this means from the point of view of revenue. But it is clearly just as important to examine for toxic substances the materials which Dr. THORPE admits are used in the manufacture of potable spirits as it is to examine brewing materials for arsenic.

---

[1] THE LANCET, May 30th, 1903, p. 1537.

[2] THE LANCET, May 23rd, 1903, p. 1469.

[3] THE LANCET of May 23rd, 1903, under Parliamentary Intelligence, p. 1490.

No less than 83,370 examinations were made at the laboratory in Clement's Inn-passage, 18,049 in the Excise Chemical Station, and 141,779 in the laboratory at the London Customs House. Nor is the work confined to mere testing operations for revenue purposes or for the purpose of reference. During the past year at any rate the work of the Government laboratory has included the examination of filters for the Board of Trade, the investigation of pottery glazes for the Home Office, and an inquiry also undertaken on behalf of the latter department bearing upon the character of the products of combustion in gas- and oil-stoves. This latter investigation brought to light the interesting and important result that the production of carbon monoxide was considerably greater in the oil-stoves than in two out of three gas-stoves submitted to examination. Lastly, the public analysts of this country may be congratulated upon the fact that of the samples of food and drugs examined by them and referred to the Government laboratory by magistrates the results were in agreement in regard to 78 out of the total of 95 cases in dispute. It is a great gain to the community that the relations between the public analysts and the Government referees are much more satisfactory than they used to be, and that the old quibbles about the merits of the different analytical methods adopted have happily ceased to exist. We attribute this excellent result to the generous and scientific spirit which the principal chemist of the Government laboratory has always shown to those public officials who with him are concerned in making effective a very important section of the administration of the country.

The Possible Dangers of Tube Railways.

THE possibility of the disaster which took place in the Paris underground railway had been foreshadowed, but while there is the risk of a train catching fire in tubes by the short-circuiting of the current the cause which gave rise to the great calamity that so recently shocked the world could have been easily avoided. We feel confident that an engine driver in the London tube railways would never be allowed by means of a train containing a complement of passengers to drive through the tunnel another train that was admittedly broken down and in which already unmistakeable signs of electric leakage were obvious. That someone committed a serious error of judgment in the Paris disaster seems fairly certain. The driver denies that he acted on his own initiative, and full inquiry will, we trust, determine on whose responsibility such a disastrous step was taken. But though we can hardly conceive a tragedy being brought about in the London tube railways in exactly the methods employed in Paris, yet it cannot be too plainly brought home to those responsible for the management of our undertakings that the catching fire of the train is a contingency which should be provided against in every conceivable direction. In saying this we bear in mind how excellently and with what marvellous freedom from serious mishap the management of the Central London Railway has been conducted. During its short and successful career millions of lives have been safely intrusted to the care of its employés. We cannot, however, ignore the serious results to which electric potentialities may give rise to in a tunnel in which there is no more space to spare than that which the train occupies. There is little doubt that many lives would have been saved in the Paris accident if the lights had not been extinguished and if there had been better provision for making exits. The Paris railway is, again, a shallow one and the tubes of London are deep, and in them therefore the difficulty of constructing exits would be greater. These points, we venture to think, were sufficiently emphasised in an exhaustive article upon the subject which appeared in the columns of THE LANCET almost exactly a year ago.[1]

From this article we take the following excerpts which, it must be admitted, bear very strongly upon recent occurrences and modern speculation:—

> Much has been said in committee as to the desirability of side doors to the cars and side tunnel platforms for use in any emergency. ...... Doors at each end of the train with a centre platform are suggested in preference, but should a train be derailed and collide with the sides of the tube few, if any, of these doors will open. It would be one more chance in the passengers' favour when the train was on fire if all such doors were skeleton ones filled in with some fabric which could be easily cut through with a penknife. ..." The possibility of a fracture in the tube itself admitting water and thus setting up electrical connexion between the wreckage and the broken cables underlying the fractured platform [of the train] might form an unpleasant feature in an accident. In a recent case at the West-end of London the accidental fracture of a water-main resulted in the setting up of a short electric circuit in one of the public supply cables, the effect of which was to boil the escaping water in the short space of time that elapsed between the accident and the fusing of the cut-out on the cable. ...... It is to be hoped that the current supplying such lights [for the lighting of the tunnels] will be generated and conducted by a system entirely independent of that supplying motive power. ...... The same may be said of the signals. ...... Colonel Yorke in his evidence before Lord Windsor's committee anticipated little difficulty

---

[1] THE LANCET, August 23rd, 1902, p. 541.

in guarding against this evil [fire] if the use of wood were avoided near cables and electrical machinery, or if, where used, it were protected by some non-combustible material—in fact, he advocated the general use of non-combustible material for all trains, stations, signal cabins, and other deep-sunk buildings. If wood must be used for sleepers owing to their lessening vibration they should not be creasoted but rendered non-inflammable. Compressed asbestos will probably take the place of the lighter woodwork. This is all very satisfactory while all goes well, but in the event of an accident the various components of a carriage will be apt to rearrange themselves and live cables may form unexpected connexions. In providing against fire the forced draught which it is now proposed to use for ventilating the tunnels will always drive the flames in one direction, which is a factor worthy of consideration in providing means of exit in such an event. ...... Should the train catch fire and there be but one exit available at the end a ghastly holocaust would result, while the panic would be too awful to contemplate. The smoke from creasoted sleepers might in such a case prove a merciful deliverance from suffering.

The two last sentences, written a year ago, describe closely what happened in Paris on August 8th, 1903. We do not, however, quote it or any other passage from our file of last year out of desire to say "We told you so." Our idea is that anyone who gave the matter adequate and independent thought, and who was not prepared to follow the lead of interested persons, might have come to the same conclusions as we did as to the possibility of tragic accidents. What we would insist upon is that the occurrence of these accidents must be guarded against by all possible precautions and that the public must not allow themselves to be pooh-poohed out of reasonable apprehensions.

◆

Some Lessons of the London Small-pox Epidemic.

IN THE LANCET of August 8th (p. 377) we published a valuable paper by Dr. J. E. SANDILANDS on the vaccination statistics of the Metropolitan Asylums Board in connexion with the recent exceptional prevalence of small-pox in London. Having for a considerable time occupied the position of assistant medical officer in actual attendance on patients in the hospital ships at Dartford Dr. SANDILANDS writes with high authority concerning the behaviour of small-pox, both in vaccinated and in unvaccinated persons, during the last two years, and he has utilised his unique opportunities for observation in a way that should carry conviction to unprejudiced minds as to the paramount, we may say exclusive, power of vaccination as a prophylactic. From the Registrar-General's return for the administrative county of London, published on the responsibility of Mr. SHIRLEY F. MURPHY, we learn that the recent small-pox epidemic in the metropolis was nearly, though not quite, coterminous with the period under notice in Dr. SANDILANDS' paper—viz., the years 1901 and 1902. In the first quarter of 1901 seven cases of small-pox were notified and in the last quarter of 1902 the number was 43. Although in the second quarter of the present year there was a slight increase in the number of reported attacks, it nevertheless remains true that the chief force of the epidemic was expended within the two previous years. During 1901 and 1902 there occurred 9496 cases within the administrative county, but the total coming under hospital treatment exceeded this number by 163; presumably, therefore, a few additional cases were admitted to hospital from districts outside the county boundaries. It is with the larger total—namely, 9659 patients—that we are now concerned.

Dr. SANDILANDS prefaces his analytical remarks with the statement that the last two annual reports of the statistical committee of the Metropolitan Asylums Board furnish one of the most valuable contributions hitherto published respecting the question of vaccination and small-pox. Dr. SANDILANDS is very kind to the compilations which have formed the source of his paper. The reports do contain, after a fashion, the facts thus courteously acknowledged—this appears from Dr. SANDILANDS' own analysis, which is avowedly founded thereupon—but the information is scattered through the volumes in such a way as not to allow of ready interpretation unless at the hands of one endowed with the necessary skill. Hence the desirability of an analysis from some one experienced in the tabulation of figures. At first sight it may seem that a total of nearly 10,000 cases of small-pox carefully observed and systematically charted would furnish sufficient material for detailed examination. But a glance at the paper shows that in order to turn to the best account the available data it is necessary to distribute the total over a dozen or more groups of very unequal size, so that the numbers in, at any rate, some of the groups are so small as to require an awkward combination of classes; but this must be done in order to obtain numbers sufficiently large to warrant practical conclusions. One of the commonest fallacies into which inexperienced inquirers fall is the habit of straining conclusions from numerically inadequate data, and the internal evidence furnished by Dr SANDILANDS' paper of his recognition of this danger will secure for his deductions confidence at the hands of his professional colleagues.

In a series of well-arranged tables he illustrates the following among other points: (1) the age incidence and relative fatality of scar-bearing vaccinated cases; (2) the classification of vaccinated cases according to the character of the scars; (3) the proportional mortality among scar-bearing cases, arranged with respect to age periods and character of scars; and (4) the comparison of the mortality among cases showing plain scars with that of cases with foveated scars. It is necessary to explain with reference to the use of the expression "mortality" that it must be taken to mean not the deaths from small-pox in terms of the population but simply the percentage of deaths to cases coming under treatment. The figures in the Asylums Board reports emphasise the same lesson that has been taught by previous small-pox epidemics, which is that the incidence of attacks is overwhelmingly greater during childhood than in later years, the mortality at the earlier ages in the recent epidemic having averaged from 20 to 50 per cent. of the cases treated. We desire to commend Dr. SANDILANDS' remarks on each of these points to the notice of our readers. We wish that they could receive the earnest consideration of those among the anti-vaccinationists—for there are such—who are honestly anxious to there are considerable divergencies in national temperament and national usages. In the British islands the majority of patients who can afford it prefer to be treated in their own homes by their own medical attendants unless their presence at home is a source of danger to their environment, but it must be admitted that in a small proportion of cases, chiefly surgical operations, this arrangement presents problems of considerable difficulty. Too often a solution is found by a patient, who would resent any imputation of poverty, obtaining gratuitous treatment in a hospital. As an alternative to hospital abuse of this kind, and keeping in mind the fact that in continental towns joint occupation of a house by several families is more common than here, there is perhaps something to be said in favour of the system described by our correspondent, but we do not think that there is much probability that it will become popular with Englishwomen. The very poor would be unable to meet the expense and those who are better off would prefer to take to bed at home.

THE PREVALENCE OF SMALL-POX.

CASES of small-pox are still occurring with undesirable frequency in the north of England. South Shields, Durham city, and West Hartlepool all report cases and 6 cases have been reported at Burton-on-Trent. According to the *Liverpool Echo* of August 14th a small-pox panic prevails at Forest Hall, a village four miles from Newcastle. Trade is described as being at a standstill, 2 deaths have occurred from the disease, and the undertaker who buried one of the victims has been himself attacked. People are crowding to the medical officer to be vaccinated. As a contrast to this a case is reported from South Shields, the patient being an unvaccinated child for whom a certificate of exemption had lately been obtained. The father of the child, being a strong anti-vaccinationist, refused to have the other members of the family vaccinated. Five of his other children had never been vaccinated. The affected child was removed to the hospital on August 12th. At the meeting of the Bristol board of guardians held on August 14th it was reported that from July 1st to Dec. 31st, 1902, 4601 births were registered in the Bristol district; of these, 2884 were successfully vaccinated, 20 were insusceptible of vaccination, 99 certificates of exemption were granted, 456 died unvaccinated, 186 were medically postponed, 399 were removed to other districts, and 557 cases were unaccounted for. At the meeting of the Clutton (Somersetshire) board of guardians held on August 14th it was reported that during the last six months of 1902 387 births were registered in the four districts of the union and of that number 281 had been successfully vaccinated.

EXPLOSIVE CIGAR-HOLDERS.

AT the Mansion House police-court on August 19th a hawker was charged with trying to obtain money upon false pretences. A detective said that the prisoner came up to him in Cheapside and offered a cigar-holder and a cigarette-holder for 6*s.*, saying that it was made of amber and gold. Witness told the prisoner that he was a police officer and that he should take him in charge, for the cigar-holder was merely made of celluloid. On the prisoner was found a number of bills relating to the holders, the price being from 1*s.* to 1*s.* 3*d.* each. The detective added that the articles could be obtained for that price in Houndsditch and were made of very inflammable celluloid. A match was applied to the articles in court and they immediately blazed up. The prisoner was discharged. Without going into the question of whether or no it is trying to obtain money by false pretences to ask 6*s.* for two amber-and-gold holders which cost about 1*s.* each and are made of celluloid, it is, at any rate, no worse than to sell grain spirit made in Hamburg or Liverpool as "Fine Old Highland Whisky." But the unrestricted sale of articles made of celluloid, which is practically gun-cotton, for any purpose whereby such article is liable to come into contact with fire should on no account be allowed. We have upon many previous occasions referred to the dangers attending the use of celluloid combs, but a celluloid cigar-holder is far more dangerous. Such an appliance might easily catch fire from the match when the cigar was lighted or relighted, and also from the cigar if it were smoked to the end. In that case serious injury or blindness might be the lot of the smoker. Celluloid has its uses, but one of these is not as a cigar- or cigarette-holder.

THE CASE OF DR. LACHLAN GRANT.

THIS case has taken another step. The Ballachulish Slate Quarries Medical Club brought an action against the Ballachulish Slate Quarries Company, their manager, and their medical officer (Dr. Lachlan Grant) to have it declared that the company and the manager had no power to enter into the agreement with the medical officer under which Dr. Lachlan Grant had been dismissed from the quarries and interdicted from practice. Lord Kincairney in the Outer House of the Court of Session has, however, found the intervention of the Ballachulish Slate Quarries Medical Club irrelevant. No doubt Lord Kincairney's law is thoroughly good, but again in this unfortunate case law is on one side while justice and good sense are on the other. Ought it to be irrelevant for the medical club who pay the medical officer and who are attended by the medical officer to claim a voice in selecting the medical officer?

THE FUTURE OF PREVENTIVE MEDICINE.

AN address delivered at Bradford on July 9th before the Sanitary Science and Preventive Medicine Section of the Twenty-first Congress of the Sanitary Institute by Professor T. Clifford Allbutt as president of the section contains some highly interesting and suggestive speculations regarding the rôle of disease as a biological factor in racial development and the position of the physician in relation to it. Since the time of the Greeks it has been by some urged against the work of the physician that by mitigation of the effects of disease, especially incurable disease, useless lives are extended and the survival of bad stocks which might otherwise die out is promoted. In other words, the physician, though working in the interest of individuals, may in the long run serve an evil purpose in society. This reproach has in modern times been revived in terms of Darwinism and the physician is regarded as promoting the survival of the unfit. Professor Allbutt very ably combats the theme that disease is to be regarded as ultimately beneficial to mankind; he points to the indiscriminating character of the incidence of disease, and shows that though in the long run its effects may have been greatest on the weaklier members, yet by its results of maiming or enfeebling, since its immediate effect is not in all cases to kill, it tends to increase the army of weaklings, or, to quote Professor Allbutt, "Who are the maimed, the deformed, the degenerate, whose survival is from a zoological point of view to be deplored? Are these cripples the gifts of the physician or the pensioners of our war with disease? To proclaim that by preventive medicine we can improve all bad stocks up to the present mean value and fertilise the good ones to be fruitful infinitely above the mean is more than I have dared to suggest, but I do call upon this congress to declare that public health will do it better and more permanently than public disease can do it." The work of preventive medicine can be only beneficial, for it includes among its aims the study of the origin of the weakling and the degenerate, since even unfitness has its causes, and to prevent their action is better "than to look to blind and violent readjustments after the extrinsic degenerative causes have done their work."

SURRA IN THE PHILIPPINE ISLANDS.

A REPORT upon Trypanosomiasis of Horses (Surra), by Dr. W. E. Musgrave and Mr. N. E. Williamson, has been issued by the Government laboratory, Manila. A good account of the disease is given and is illustrated by plates. The important discovery is made that some of the rats in Manila Harbour were infected with the horse trypanosoma, and that the parasite was not the ordinary rat trypanosoma was proved by inoculation experiments. Dr. Musgrave and Mr. Williamson consider that all biting insects and flies should be regarded as possible carriers of the infection until further investigation has shown what species are concerned in the transmission of the disease. It is expected that by proper quarantine laws and by enforcing efficient sanitary regulations it may be possible to stamp out the disease.

SAFEGUARDING OUR MILK-SUPPLIES.

IN view of the increasing attention which is being bestowed by sanitary authorities upon our milk-supplies in order to insure the purity of this important article of diet the announcement that the National Physical Laboratory will verify the correctness of the apparatus used for milk analysis is of importance. The committee states that it is prepared to receive, for the purpose of verification, the pipettes, measuring glasses, and test-bottles used in the Lister-Gerber and other similar methods of testing milk. A circular has been issued detailing the limits of accuracy and general conditions respecting the apparatus to be tested and can be obtained on application to the Director of the Laboratory, Bushey House, Teddington. The fees charged are extremely moderate and it is to be hoped that analysts, manufacturers, and others will avail themselves of these facilities.

THE INTERNATIONAL FIRE EXHIBITION AT EARL'S COURT.

To all who are interested in the saving of human life the International Fire Exhibition at Earl's Court will prove instructive and attractive. The realistic representation of a fire and the means by which people are conveyed from a third-floor window through the flames safely to the street below is not only a sensational theatrical triumph but it is a useful object lesson. The spectacle having been enjoyed, the technical details which form the reason of the exhibition must be examined. Here will be found all manner of devices for the prevention as well as for the extinguishing of fires. There is patent metallic lathing for the making of floors, partitions, &c., instead of using the highly inflammable wooden laths now generally employed. There are self-supporting ceilings and staircases that will not stumble and fall when attacked by fire, wood chemically treated so that it will not burst into flames, and fire-resisting plaster. The building of theatres and stages, so that the danger of a conflagration may be reduced to a minimum, is also carefully studied, and there are many varieties of chemical fire extinguishers, carbonic acid gas extinguishers, hand extinguishers, and other contrivances that may be used effectively by anyone who happens to be present at the commencement of a conflagration. There are likewise various assortments of tissues and cloth used for curtains, drapery, or clothes that are not inflammable, and these should greatly reduce the dangers of fires at theatres and other places of entertainment. The injury done, and fires occasioned by, lightning constitute quite a little section in itself. Here the Royal College of Surgeons has sent the tattered fragments of the clothes that were stripped from a man struck by lightning and carried across a field in a straight line to a distance of 22 yards. Of course, there are ambulances, stretchers, and medical and first-aid chests for the treatment of those who are burnt or wounded at fires. Naturally the fire-engines and fire-escapes have a great share of the space, particularly as the questions involved are treated historically, and we have not only specimens of the most recent appliances and improvements, but also of many of their oldest and most clumsy predecessors. The importance to us of such an exhibition is shown by the fact that the number of fires in the metropolis has during the period of 1891–1901 increased in the proportion of 27·4 per cent., though the increase of population is estimated at only 7·7 per cent. With these figures before us, and a vivid recollection of the recent terrible and fatal fire in Queen Victoria-street, it is disappointing to find that there seems to have been no recent improvements effected by British manufacturers of fire-engines or fire escapes. Messrs Merryweather have, it is true, one motor fire-engine, but for motor and improved fire-escapes we must go to the German section. Here we have imposing machines with motor or horse traction that can travel at the rate of from 10 to 15 miles an hour and stop in a distance of a yard or two. The fire-escapes are worked by power, compressed air, or carbonic gas. With marvellous speed they can extend their ladders to a height of from 80 to 90 feet. The Sheffield and other British corporations are, we understand, buying these German machines because nothing similar is made in England. Indeed, the Germans have taken an enormous amount of trouble to show their proficiency at this exhibition and should render us great service by enabling us to realise that, especially in regard to fire-escapes, we are behindhand and must make renewed, more intelligent, and greater efforts.

THE IMMIGRATION REFORM ASSOCIATION.

"The object of the Immigration Reform Association is to organise and render efficient the widespread feeling which is known to exist in the country in favour of checking the immigration of undesirable aliens." This we learn from the prospectus of the association which has reached us, accompanied by a number of small pamphlets setting forth in detail the wickedness of alien immigrants. These booklets are attractively bound in paper covers of various colours after the manner of the fairy books of Mr. Andrew Lang. Thus we have "Fraudulent Aliens" in a blue covering, "Criminality among Aliens" in red, "Aliens and Overcrowding" in yellow, and "Aliens and Vice" in pink. The association asks for countenance and assistance, and especially for funds, to place their pamphlets before the public "throughout the kingdom." Some of the literature provided is not of a kind which should be generally disseminated. It does not appear that the association has formulated any legislative proposals, but we learn that some proposals "are receiving the most anxious attention of the committee," which, it may be noted, contains something like 60 Members of Parliament. It does not seem, however, that the committee have made much progress in the construction of a "platform." They have decided what they will not support in the following words: "Whatever form the proposed legislation may take it would not in any way interfere with the cherished right of asylum for political offenders nor prevent the settlement in the country of those immigrants who are likely to prove a desirable addition to the population." But how are we to discriminate between a genuine political refugee or a harmless visionary reformer, on the one hand, and a black anarchist or a degraded *souteneur*, on the other? The inquiry of Mr. Charles Booth has brought out clearly enough the fact that the standard of order enforced by the police differs widely in different parts of the metropolis. This was, of course, a thing quite familiar to the few who knew London well, but it has now definitely been put on record. The police standard represents more or less the views of the inhabitants of a given locality and is actually regulated by the orders which they receive from their officers. At the present time it is notorious that many parts of London are inadequately supplied with police and consequently in the present circumstances it is impossible that these districts should be kept in proper order. It is necessary for the well-being and for the safety of London that all parts of the town should be under complete and efficient police protection and the quarters occupied by poor aliens should by no means be neglected in this respect. This is a matter of much more importance than the statement made by the Immigration Reform Association to the effect that "alien immigrants have ...... been the cause of financial ruin to numerous English retail traders." "There is," we are told, "serious danger of anti-alien riots," and the paragraph in which this information is given is so worded that it seems to imply that such riots would not be altogether unjustifiable, "so severe is the hardship as it affects our own working class." We have no doubt that these words are founded on fact, but they prove an additional reason for strengthening the hands of the police and also for expecting at an early date from the Association some idea of how it is proposed to discriminate between the good and the bad stranger before he establishes himself within our gates.

FRACTURE OF THE MANDIBLE DURING TOOTH EXTRACTION.

A CASE of fracture of the mandible during tooth extraction is recorded by Mr. J. H. Badcock in the recent issue of the Transactions of the Odontological Society. A right third molar which was misplaced had been the seat of recurrent attacks of inflammation. The tooth was almost buried and was lying horizontally with the morsal surface pointing forwards. An attempt was made to remove the tooth but during the efforts to dislodge it the mandible fractured, the line of fracture running horizontally backwards in a straight line from the lower border of the third molar. The fracture was treated and about three months subsequently the tooth was successfully removed. The removal of misplaced unerupted third molars is frequently extremely difficult. Where doubt exists as to the exact situation of the tooth a skiagram should be obtained. The muco-periosteum covering the bone should be reflected and the bone cut away so as to allow the tooth to be easily removed with forceps or elevator. The wound left must be properly treated by plugging. A considerable amount of suffering would be saved if the wounds made by tooth extraction were regarded in the same light as wounds in other parts of the body.

THE TREATMENT OF CHOREA.

IN another column we publish a paper by Dr. R. T. Williamson on the treatment of chorea with aspirin. The drug was given in 35 consecutive cases of the disease and in all favourable results were obtained. The patients were kept away from school but were not confined to bed. The good results obtained, therefore, cannot be attributed to the influence of enforced complete rest. Dr. Williamson states that he writes on the subject with some hesitation, since the disease is one which has usually a tendency to terminate in recovery in the course of time apart from any medical treatment. In severe cases, on the other hand, the disease cannot be immediately arrested by aspirin or by any drug or form of treatment. When steady and progressive improvement follows the administration of drugs usually one or two weeks, often a longer time, must elapse before recovery is complete. Bearing these facts in mind Dr. Williamson is quite correct in maintaining that there is necessity for great caution in drawing conclusions as to the action of any drug. He has, however, performed good service in publishing the results he has already obtained. It is only by prolonged trial and extended experience on the part of many observers that the true value of any therapeutic measure can be ascertained and we, therefore, are glad to publish reports of treatment which hold out hopes of success in order that more extended trial may be made. For this reason in our issue of last week we published a paper on the treatment of sporadic dysentery by Mr. William Fingland. Cases of this nature are occasionally met with in this country which prove very rebellious to treatment. Mr. Fingland draws attention to a preparation obtained from the aplopappus baylahuen, a plant indigenous to South America. The few cases in which he tried the drug proved successful. It is, of course, not wise to express an opinion on the outcome of only three cases, but the symptoms produced by this affection are so distressing and so many procedures, medical and surgical, have been adopted in vain that we think that other practitioners may like to make use of the drug.

ANÆSTHESIA PRODUCED BY HYPNOTISM.

IT is no longer necessary in referring to hypnotism to waste words in discussing whether the condition is real or imaginary. Every careful, conscientious, and scientific observer who has investigated the subject has been convinced of its genuineness. But unfortunately credulity, superstition, chicanery, and fraud have been so closely associated with hypnotic exhibitions that only a comparatively small number of observers have had the patience to ascertain the true value of the hypnotic state. It is now thoroughly accepted that a certain amount of anæsthesia can be produced in persons who have been hypnotised, but inability to recognise painful impressions probably does not occur spontaneously in hypnosis but rather as the result of suggestion. Many operations have actually been performed upon subjects under anæsthesia produced by hypnotism. Dr. Esdaile recorded 261 operations performed by himself in India while his patients were insensible from hypnotic suggestion.[1] A large number of the operations consisted in the removal of tumours varying in weight from 10 to 103 pounds. In another column we publish an account of an amputation of the leg under hypnotism which shows the extent to which the anæsthesia can be carried. Such a degree of hypnosis, however, is difficult to secure and the time occupied in producing it may be long. Moreover—and this is highly important from the practical standpoint—the anæsthesia produced by hypnotism varies greatly in different subjects and is extremely uncertain in its nature and duration. The case we publish, therefore, can only be regarded to some extent as a curiosity, although the issue was highly favourable and seems to support the procedure employed very strongly.

THE only case of plague discovered in Cape Colony during the week ending July 25th occurred at East London. As regards Mauritius, a telegram from the Governor received at the Colonial Office on August 14th states that for the week ending August 13th there were 15 cases of bubonic plague and 12 deaths from the disease.

Professor Rubert Boyce delivered an address in the Examination Schools at Oxford, in connexion with the Oxford University extension meeting, upon Bacteriology in Relation to the Tropics.

---

[1] Practical Therapeutics. Edited by F. P. Foster, M.D. Vol. 1, p.

THE RULES OF THE CENTRAL MIDWIVES BOARD.

THE rules framed by the Central Midwives Board in pursuance of Section 3 of the Midwives Act, 1902 (2 Edw. VII., c. 17) have been approved by the Privy Council. The schedule which follows gives the rules as modified by the Privy Council from the draft and minority report submitted to them some three months ago by the Midwives Board. Section A, which merely regulates the proceedings of the Board, has been omitted. The prescribed forms can be obtained at the office of the Central Midwives Board, Suffolk-street, Pall-mall, S.W.

B.—REGULATING THE ISSUE OF CERTIFICATES AND THE CONDITIONS OF ADMISSIONS TO THE ROLL OF MIDWIVES.

[illegible] they [illegible] the [illegible] e of [illegible] age, [illegible] ain- [illegible] ioral [illegible]

2. Candidates must pass an examination as hereinafter set forth. (See *C* below.)

[illegible] quirements and [illegible] a certificate in [illegible] entered by the [illegible]

4. The names of all women admitted to the Roll of Midwives under Section 6 (1) and (2) of the Midwives Act shall be printed in one single list and in alphabetical order.

C.—REGULATING THE COURSE OF TRAINING AND THE CONDUCT OF EXAMINATIONS AND THE REMUNERATION OF THE EXAMINERS.

1. No person shall be admitted to an examination unless she produces certificates that she has undergone the following course of training, viz.:—

(1) She must have, under supervi[illegible] Midwives Board, attended an[illegible] fewer than 20 labours, making [illegible] tions during the course of labour and personally delivering the patient.

(2) [illegible] institution, or by a mid- [illegible] Act and approved by the [illegible]

2. Candidates who intend to present themselves for examination must send notice to the secretary of the Central Midwives Board at least three weeks before the date fixed for the examination to [illegible] mentioned in *B* 1 and *C* 1, [illegible] *inca or, in the event of the* [illegible] ormer occasion and having [illegible]

[illegible] a want of [illegible] ation may [illegible]

[illegible] to prepare [illegible] including [illegible] r. (*h*) The [illegible] gns of the [illegible] days. (*i*) [illegible]) Obstetric [illegible] until the [illegible] owledge of the drugs [illegible] of their administra- [illegible] c, causes, and sym- [illegible] isinfection of person, clothing, and appliances.

5. Due notice shall be given *of the examinations to be held under the* Act.

6. The remuneration of the examiners shall be such as may from time to time be recommended by the Central Midwives Board and approved by the Privy Council.

D.—REGULATING THE ADMISSION TO THE ROLL OF WOMEN ALREADY IN PRACTICE AS MIDWIVES AT THE PASSING OF THE ACT.

[illegible] ves under Section 2 [illegible] ed *forms and* must [illegible] er with such one or [illegible]

2. In the case of women claiming admission on the ground of having [illegible]

(b) a certificate signed by a justic[illegible] or registered medical practitioner, (approved by the Central Midwive[illegible]

4. In the case of women claiming admission on the ground of having been in *bonâ fide* practice as midwives for 12 months previous [illegible] cate to the effect that the applicant [illegible] of the person signing been in *bonâ* [illegible] or at least 12 months prior to the [illegible] is trustworthy, sober, and of good [illegible] the [illegible] of [illegible] to [illegible]

5. The certificates to be issued by the Board under this section will be in the prescribed forms.

[illegible] he Roll of Midwives under- [illegible] received after the 31st day [illegible]

E.—REGULATING, SUPERVISING, AND RESTRICTING WITHIN DUE LIMITS THE PRACTICE OF MIDWIVES.

DIRECTIONS TO MIDWIVES.

1. The midwife must be scrupulously clean in every way, because the smallest particle of decomposing matter may set up puerperal fever. She must wear a dress of washable material and over it a clean washable apron.

Note.—It is best to have the sleeves of the dress made so that the midwife can tuck them well up above the elbows.

[illegible] and other injuries.

[illegible]

3. On each occasion of touching the genital organs or their neighbourhood the midwife must previously disinfect her hands and forearms.

4. All instruments and other appliances brought into contact with the patient's generative organs must be properly disinfected.

[illegible] a patient [illegible] supposed to [illegible] ments and [illegible] authority, [illegible] going to [illegible] upervising [illegible] r clothing, [illegible] and then [illegible]

DUTIES TO PATIENT.

6. If a midwife has charge of a lying-in case she must not leave the

patient after the commencement of the second stage and she must stay with the woman until the expulsion of the afterbirth, and as long after as may be necessary. In cases where a doctor has been sent for on account of the labour being abnormal or of there being threatened danger she must await his arrival and faithfully carry out his instructions. (*See Clauses 12 and 17 below.*)

7. Before making the first internal examination and always before passing a catheter the midwife must wash the patient's external parts with soap and water and then swab them with an antiseptic solution. For this purpose, and for washing the external parts immediately after labour and during the lying-in, on no account must ordinary sponges or flannels be used, but material which can be boiled before use and thrown away afterwards, such as linen, cotton-wool, cotton-waste, tow, &c.

8. No more internal examinations should be made than are absolutely necessary.

9. On the birth of a child which is in danger of death the midwife shall inform one of the parents of the child's condition.

10. The midwife must remove soiled linen, blood, fæces, urine, and the placenta from the neighbourhood of the patient and from the lying-in room as soon as possible after the labour and in every case before she leaves the patient's house.

11. The midwife shall be responsible for the cleanliness and shall give full directions for securing the comfort and proper dieting of the mother and child during the lying-in period, which shall be held for the purpose of these regulations and in a normal case to mean the time occupied by the labour and a period of ten days thereafter. (See Clause 17 (*c*).)

12. A "case of normal labour" in these regulations shall mean a labour in which there are none of the conditions specified in Clause 17 below.

DUTIES TO CHILD.

13. In the case of a child being born apparently dead the midwife should carry out the methods of resuscitation which have been taught her.

14. As soon as the child's head is born, and if possible before the eyes are opened, its eyelids should be carefully cleansed with a suitable antiseptic lotion.

GENERAL.

15. No midwife shall undertake the duty of laying out the dead or follow any occupation that is in its nature liable to be a source of infection.

16. A midwife must enter in a book, with other notes of the case, all occasions on which she is under the necessity of administering any drug, whether scheduled as a *poison* or not, the dose, and the time and cause of its administration.

17. In all cases of abortion, of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in, a midwife must decline to attend alone, and must advise that a registered medical practitioner be sent for, as, for example, under the following circumstances:—

(*a*) In the case of a pregnant woman: (1) When she suspects a deformed pelvis; (2) when there is loss of blood; (3) when the pregnancy presents any other unusual feature (as, for example, excessive sickness, persistent headache, dimness of vision, puffiness of face and hands, difficulty in emptying the bladder, incontinence of urine, large varicose veins, rupture), or when it it is complicated by fever or any other serious condition.

(*b*) In the case of a woman in labour: (1) In all presentations other than the uncomplicated vertex or breech; in all cases of breech presentation in primiparæ; in all cases of flooding and convulsions; and also whenever there appears to be insufficient room for the child to pass, or when a tumour is felt in any part of the mother's passages; (2) if the midwife, when the cervix has become dilated, is unable to make out the presentation; (3) if there is loss of blood in excess of what is natural, at whatever time of the labour it may occur; (4) if an hour after birth of the child the placenta has not been expelled and cannot be expressed—i.e., pressed out—even if no bleeding has occurred; (5) in cases of rupture of the perineum or other serious injury of the soft parts.

(*c*) In the case of lying-in women and in the case of newly born children: Whenever, after delivery, the progress of the woman or child is not satisfactory, but in all events upon the occurrence of the subjoined conditions in—

(I.) *The Mother:* (1) Abdominal swelling and signs of insufficient contraction of the uterus; (2) foul-smelling discharges; (3) secondary post-partum hæmorrhage; (4) rigor; (5) rise of temperature above 100° 4′ F. with quickening of the pulse for more than 24 hours; (6) unusual swelling of the breast with local tenderness or pain.

(II.) *The Child:* (1) Injuries received during birth; (2) obvious malformations or deformities, not inconsistent with continued existence; (3) concealed malformations—incapacity to suck or take nourishment; (4) inflammation to even the slightest degree of the eyes, eyelids, and ears; (5) syphilitic appearance of the skin in certain parts; (6) illness or feebleness arising from prematurity; (7) malignant jaundice (icterus neonatorum); (8) *inflammation* about the umbilicus (septic infection of the cord).

(*d*) In cases of the death of a woman during pregnancy labour or lying-in. When a registered medical practitioner is sent for a midwife must state in writing the condition of the patient and the reason of the necessity for medical advice in accordance with Clause 19 (*b* below).

NOTIFICATION.

18. (1) *Deaths.*—In all cases in which the death of the mother or of the child occurs before the attendance of a registered medical practitioner the midwife shall, as soon as possible after the death, notify the same to the local supervising authority.

(2) *Stillbirths.*—In all cases where a registered medical practitioner is not in attendance the midwife shall, as soon as possible after the occurrence of a stillbirth, notify the same to the local supervising authority. A child is deemed to be stillborn when it has not breathed or shown any sign of life after being completely born.

(3] *Puerperal fever and other infectious diseases.*—These cases are included in the notice required when medical help is sent for. (See 19 (*b*) below.)

19. A midwife shall keep the following records:—

(*a*) A register of cases, in the following form:—

No. ....
Date of engagement to attend ....
Name and address ....
....
No. of previous labours and miscarriages ....
Age..
Date and hour of Midwife's arrival ....
Presentation ....
Duration of 1st, 2nd, 3rd stage of labour ....
Complications (if any) during or after labour ....
....
Sex of Infant...............Born living or dead..
Full time or premature—No. of months..
If Doctor called...................Name of Doctor..
Date of Midwife's last visit..
Condition of Mother then (see Clause 11, above.)..
....
Condition of Child then..
Remarks * ....
....

* If any drugs have been administered state here their nature and dose and the time and purpose of their administration.

(*b*) A record of sending for medical help, in the following form;

No. .... Date ....
Name of patient ....
Address ....
requires medical assistance at once on account of ....
....
Signed .... (Certified midwife).

Sent to (doctor) ....
at (address) ....
Time of sending message ....

The midwife shall make two copies of the above (*b*) by means of transfer paper or otherwise; she shall preserve one of these copies for herself and shall send the other by post to the local supervising authority within 12 hours. (See Clause 18 (3), above.)

The midwife is also recommended to keep a case-book with fuller details.

20. The supervising authority shall make arrangements to secure a proper inspection of every midwife's case-book, bag of appliances, &c., and when thought necessary, an inspection of her place of residence
node of practice.
on (*E*) shall apply to certified midwives
hospitals, workhouses, or Poor-law infir-
of a duly appointed medical officer.

F.—DECIDING THE CONDITIONS UNDER WHICH MIDWIVES MAY BE SUSPENDED FROM PRACTICE.

In carrying out Section 8 (3) of the Midwives Act it shall be the duty of the local supervising authority to suspend a midwife from practice who contravenes the directions for the use of disinfectants and for the employment of proper safeguards against the spread of infection and any other rules for the purpose laid down by the Central Midwives Board, and in the exercise of that duty the local supervising authority shall, after communicating their decision in writing to the midwife concerned, at once report any suspension (with the grounds thereof) to the Central Midwives Board.

G.—DEFINING THE PARTICULARS REQUIRED TO BE GIVEN IN ANY NOTICE UNDER SECTION 10 OF THE ACT.[1]

The particulars required to be given in any notice under Section 10 of the Midwives Act, 1902, shall be as follows:—

(1) The number and date of the certificate granted by the Central Midwives Board to the person giving the notice.

(2) Her Christian name and surname in full, and if married since the grant of her certificate, the name under which it was granted to her.

(3) Her usual place of residence, and if she carries on her practice elsewhere, the address also where she practises.

(4) If she practises or acts as a midwife outside the area within which she usually resides or carries on her practice, the date and address at which she commenced to practise or pursue her calling without such area.

(5) The notice shall be in the prescribed *Form* (Schedule, Form XII.).

---

[1] This section deals with *notification by* the midwife of intent to practise in a certain district.—ED. L.

WEST COUNTRY SOLDIERS AND THE WAR.—On Plymouth Hoe, on August 8th, in the presence of a large and representative gathering, Lady Audrey Buller, on behalf of Princess Christian, unveiled the obelisk erected by Mr. A. Mosely in memory of Prince Christian Victor and the west country soldiers who fell in the South African war. General Buller afterwards presented the South African medal to Surgeon A. L Fleming, who voluntarily served in the Princess Christian Hospital in Natal.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

[illegible] *(Mon.).*—The practicability of [illegible] chemical preservatives in the [illegible] such as Newport (population 68,862) is the subject of yearly illustration in most parts of Europe. Dr. J. Howard-Jones points out that milk if properly cooled after being drawn from the cow can be kept for 48 hours before turning sour, and he adds that none of the samples of milk submitted to the public analyst of Newport during 1902 were found to contain chemicals. We conclude that this remark applies not only to boron preservatives but to others such as formalin. The town council is to be congratulated upon the success of its efforts in this direction and the result is an interesting illustration of what may be done without legal proceedings. The importance of an urban district being able to exercise some control over the sources of the milk-supply of its district is shown by the fact that in the case of Newport 75 per cent. of the milk comes from outside the borough limits.

County-Borough of Burton-upon-Trent.—Measles has been notifiable in Burton since 1893, but it has now been determined, on the advice of Dr. Harold Coates, the medical officer of health, to discontinue the practice. The following statement as to the cost of notifying various diseases from 1894 to October, 1902, is instructive: measles, £1490; scarlet fever, £290; diphtheria, £127, erysipelas, £78; enteric fever, £48; puerperal fever, £4; and small-pox, £1. It will be noted that the cost of measles notification has been very markedly in excess of that of any other notifiable disease. There have been epidemics of measles every second year since 1894, the number of cases for each succeeding year having been as follows: 1963, 96, 2453, 272, 2648, 25, 2690, 138, 1604 (ten months of 1902). These figures apparently show that notification has been without effect and as regards mortality it seems that the rate was greater during the eight notification years than it was during the eight preceding years. Having regard to these facts it has been determined that "the cost of notification is out of all proportion to any benefit received." We are not told what use was made of the information obtained by notification and hence it is difficult to discuss the matter further. Nor is it, of course, possible to compare the fatality-rate of the disease in the notification and pre-notification periods.

Southampton County Borough.—Mr. R. E. Lauder embodies in his annual report an interesting account of the outbreak of enteric fever which occurred in Southampton last year after the mayor's banquet on Nov. 10th, to which subject we recently devoted a leading article.[1] Mr. Lauder takes an eminently sensible view of the oyster and shell-fish problem when he says: "The difficulty of providing a practical sewage disposal scheme which will produce an effluent free from infection is great and any legislation to be effective and not simply hamper the home industries must give power to control the importation of shell-fish which at present is carried on extensively." With respect to the voluntary notification of tuberculosis which is in force in Southampton the medical officer of health does not speak enthusiastically, most patients, he adds, "objecting to their medical advisers notifying the disease." Seemingly, too, Mr. Lauder is not in favour of its compulsory notification, as he thinks that such a measure would militate against the tuberculous person being able to obtain a livelihood. He is also of opinion that if the sanatorium treatment is to be successful the tuberculous patient must follow some other and healthier occupation when he leaves the institution.

Ipswich County Borough.—Mr. G. S. Elliston congratulates Ipswich upon narrowly escaping a widespread epidemic of small-pox as the disease was introduced into the town on three separate occasions and there are in the borough a large number of unvaccinated children. A house-to-house visitation in the neighbourhood of an outbreak led to the discovery in numerous instances of from one to five unvaccinated children. Several cases of enteric fever were caused, it is thought, by eating cockles taken from the vicinity of the sewer outfall and in four instances the attack was by a process of exclusion attributed to the accidental swallowing of river water. We are glad to see that Mr. Elliston is advocating some improved [illegible] sewage. The present met[illegible] almost useless. We are cer[illegible]tion of the sewage will render it safe to collect cockles to be consumed raw or partly boiled from the vicinity of the sewer outfall, but a suitable bacterial process would probably reduce the evil in a very material degree and render the estuary far less offensive than it apparently is at present. The sanitary authority took the only practical step possible in placarding the district with bills warning the public of the danger they incur by the consumption of cockles obtained near the sewer outfall. If in spite of this warning then still persist in the practice they must be prepared to accept the risk.

Chelsea Metropolitan Borough.—Dr. Louis C. Parkes in his endeavour to control the spread of small-pox in Chelsea received unofficial assistance of a very practical and helpful character. With the view of promoting vaccination in the borough a Chelsea lady put a sum of money at the disposal of the medical officer of health and by means of this timely aid Dr. Parkes succeeded in procuring the vaccination or revaccination of 211 males and 22 female inmates in the common lodging-houses of the borough. The cost per head, including "the initial monetary inducement and compensation for disablement in a certain small proportion of cases," amounted to about 2*s.* 6*d.* Dr. Parkes has within recent years been instrumental in the initiation of some important housing schemes which money borrowed from the London County Council for 60 years at 3½ per cent. interest has enabled the borough council to undertake.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8966 births and 4544 deaths were registered during the week ending August 15th. The annual rate of mortality in these towns, which had been 13·4, 14·4, and 14·3 per 1000 in the three preceding weeks, rose again to 15·7 per 1000 last week. In London the death-rate was 14·2 per 1000, while it averaged 16·4 in the 75 other large towns. The lowest death-rates in these towns were 6·9 in Reading, 7·1 in Hastings, 7·4 in King's Norton, 8·1 Wallasey, 9 7 in Barrow-in-Furness, 9·8 in Smethwick, and 9 9 in Northampton; the highest rates were 21·4 in Hanley and in Bolton, 21·6 in Salford, 24·6 in Grimsby, 25 9 in Bury, 26·6 in Sheffield, 27·5 in Bootle, and 28·9 in Birkenhead. The 4544 deaths in these towns last week included 886 which were referred to the principal infectious diseases, against 532, 591, and 717 in the three preceding weeks; of these 886 deaths 607 were attributed to diarrhœa, 91 to measles, 63 from whooping-cough, 59 to diphtheria, 33 to scarlet fever, 28 to "fever" (principally enteric), and five to small-pox. No death from any of these diseases was recorded last week in Hastings, Bournemouth, Burton-on-Trent, Barrow-in-Furness, Stockton-on-Tees, West Hartlepool, or Tynemouth; while they caused the highest death-rates in Ipswich, Aston Manor, Grimsby, Birkenhead, Bootle, Bury, Salford, Sheffield, and Hull. The greatest proportional mortality from measles, occurred in East Ham, Ipswich, Leicester, Sheffield, and Middlesbrough; from diphtheria in Great Yarmouth and Hanley; from whooping-cough in Oldham, Sheffield, and Newport (Mon.); and from diarrhœa in Grimsby, Birkenhead, Bootle, Bury, Salford, Sheffield, and Hull. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. Of the five fatal cases of small-pox registered in these towns last week two belonged to Liverpool, and one each to Leicester, Oldham, and Newcastle-on-Tyne. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals at the end of last week was 45, against 71, 66, and 48 at the end of the three preceding weeks; nine new cases were admitted during the week, against 12, nine, and four in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 1711, 1726, and 1771 on the three preceding Saturdays, had declined again to 1758 on Saturday last, August 15th; 215 new cases were admitted during last week, against 229, 237, and 216 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 132, 110, and 107 in the three preceding weeks, rose again last week to 120, but were 11 below the number in the corresponding period of last year. The causes of 55, or 1·2 per cent., of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Salford, Bradford, Newcastle-on-Tyne, and in 46 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, St. Helens, Warrington, Rochdale, Sunderland, and South Shields.

---

[1] THE LANCET, July 18th, 1903, p. 172.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·4, 14·7, and 14·6 per 1000 in the three preceding weeks, rose again to 15·4 per 1000 during the week ending August 15th, but was 0·3 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·2 in Edinburgh and 13 4 in Dundee to 17 6 in Paisley and 18·8 in Greenock. The 505 deaths in these towns included 45 which were referred to diarrhœa, 12 to whooping-cough, five to measles, three to scarlet fever, three to "fever," and one to diphtheria, but not one to small-pox. In all, 69 deaths resulted from these principal infectious diseases last week, against 62, 63, and 60 in the three preceding weeks. These 69 deaths were equal to an annual rate of 2·1 per 1000, which was 1·0 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 34, 28, and 34 in the three preceding weeks, further rose last week to 45, of which 24 were registered in Glasgow, five in Dundee, four in Leith, four in Greenock, three in Aberdeen, three in Paisley, and two in Edinburgh. The deaths from whooping-cough, which had been 11, 15, and five in the three preceding weeks, rose again to 12 last week, and included eight in Glasgow and two in Edinburgh. The fatal cases of measles, which had been seven, six, and five in the three preceding weeks, were again five last week and included four in Glasgow. The deaths from scarlet fever, which had been four, three, and six in the three preceding weeks, declined again last week to three, and all occurred in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 79, 69, and 54 in the three preceding weeks, further declined last week to 50, and showed a decline of 23 from the number in the corresponding period of last year. The causes of 17, or more than 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 17·5, 18·3, and 18·2 per 1000 in the three preceding weeks, further declined to 18 0 per 1000 during the week ending August 15th. During the past four weeks the death-rate has averaged 18·0 per 1000, the rates during the same period being 13·4 in London and 13 6 in Edinburgh. The 131 deaths of persons belonging to Dublin registered during the week under notice were one less than the number in the preceding week and included seven which were referred to the principal infectious diseases, against nine, five, and eight in the three preceding weeks; of these, two resulted from "fever," two from diarrhœa, and one each from measles, from diphtheria, and from whooping-cough, but not one from either small-pox or scarlet fever. These seven deaths were equal to an annual rate of 1·0 per 1000, the death-rates last week from the same diseases being 2·3 in London and 1·3 in Edinburgh. The fatal cases of diarrhœa, which had been four and five in the two preceding weeks, declined again to two last week. Two deaths were referred to "fever" last week, against none in either of the two preceding weeks. The 131 deaths in Dublin last week included 28 of children under one year of age and 35 of persons aged 60 years and upwards; the deaths of infants showed a decline, while those of elderly persons were slightly in excess of the number in the preceding week. One death from violence and four inquest cases were registered and 54, or more than two-fifths, of the deaths occurred in public institutions. The causes of 13, or nearly 10 per cent., of the deaths registered in Dublin last week were not certified.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—Dr. Wiglesworth agrees that every lethal disease, by weeding out the weak against itself, has been a cause of evolution and that herein lies the explanation of the fact that every race is resistant to every disease strictly in proportion to its past experience of that particular disease. Apparently he admits, also, what indeed is a patent fact, that every race which commands a sufficient supply of alcohol is temperate strictly in proportion to its past experience of the poison. But because some victims of alcoholism perish after the child-bearing age he is inclined to attribute the evolution in this case, not to the elimination of the drunkards, but to the elimination of the offspring. According to him, then, it is not the generation which drinks but the generation which, owing to its youth, does not drink that is weeded out by alcohol. It will be seen that he enunciates a new and highly original theory of natural selection. I can only reply that while there is very massive and conclusive evidence that from the age of 25 years forwards alcohol is the cause among actual drunkards of a mortality greater than that caused by any disease, there is not a scintilla of real evidence that parental drinking is a cause of "inherited weakness" among children. I fear I must insist that the evidence set forth by alienists is not, as it stands, worth the paper on which it is written. It is asserted by them that "mental instability" and a tendency to alcoholism are apt to coincide in the same individual. It is also admitted that both "mental instability" and a tendency to alcoholism are transmissible to offspring. Why, then, they should attribute the filial defects to parental drinking and not to the parental defects passes my comprehension, especially in view of the evidence furnished by biologists of the extreme indifference of the germ plasm to external influences. If it be asserted that the offspring of drunkards are often more defective than themselves I can only reply that so are the children of non-drunkards. It is clear that an inquiry conducted on these lines should be stringently limited to the children of drunkards who were otherwise perfectly normal and even then—so complex and difficult is the matter—we should have to eliminate the personal equation of the observer. When I was a student one of my teachers who had a "purity" craze attributed all nervous complaints and a good deal more besides to "sexual excess" or venereal disease. Another—a temperance enthusiast—attributed precisely the same disorders to drink. It went very hard with either if they failed to find evidence of what they expected in the sufferers or their progenitors. At the present day I have the advantage of knowing personally more than one industrious observer who, I am sure, would discover "mental instability" in an archangel if only it were proved that the archangel's parents had "twined the vine-leaves in their hair."

May I beg Dr. Wiglesworth when considering his new theory of natural selection to remember that *all* the members of a race that has had no experience of alcohol are drunken to a furious and uncontrollable degree when given access to strong modern solutions. It cannot be doubted since every race which is now temperate was anciently drunken that this was the primitive condition of mind. The most temperate people on earth—the South Europeans and the West Africans—have had unlimited supplies of alcohol for thousands of years, and as there is no evidence of an effective temperance propaganda among them every member of these races must have been exposed to the influence of alcohol "of such intensity as to preclude the possibility of any stable elements being left." Under the conditions I can understand the operations of the scheme of evolution by natural selection as explained by Darwin, but I cannot understand it as explained by Dr. Wiglesworth. I must beg him besides to remember that West Africans have been exposed also to the influence of another poison, malaria, "of such intensity as to preclude," if his doctrine of germinal injury through parental poisoning be correct, "the possibility of any stable elements being left."

Dr. Wiglesworth declares that "it seems impossible to suppose that the delicate cells of which the germ plasm is composed should be wholly uninfluenced by being placed in an adverse nutritional environment such as must exist when alcohol or other poisons are circulating in the blood." But really I have not declared the contrary. I know nothing about the point raised and I am inclined to believe that no one else knows more. I have merely insisted that alcohol and other poisons do not appear *so* to affect the germ cells that their very remote descendants (the body cells of the child) are rendered defective. I ask for evidence and after all science is founded solely on evidence. The method of inquiry followed by Dr. Wiglesworth, the arriving at important conclusions in the absence of evidence, or in despite of evidence, has led, I suppose, to more scientific error than all other causes combined.

At the meeting of the British Medical Association held lately at Swansea almost every speaker who commented on my paper on Human Evolution with Especial Reference to Alcohol, declared confidently that injurious influences acting on parents cause offspring to be degenerate. Dr. W. Lloyd Andriezen, for example, had seen "hundreds of cases." Dr. A. T. Schofield was amazed to find that I had not observed what others saw "every day," and scandalised that doctrines so flagitious should be introduced to the public weighted with all the prestige that attaches to a paper read before the Psychological Section of the British Medical Association. He was good enough to intimate that an hour's conversation with himself would convince me of the errors of my ways. But Dr. Schofield's surprise, however great, was not half so great as my own. Imagine the Psychological Section suddenly rediscovering and introducing to an appalled world the scientific common-places of the last 10 or 20 years. I am not unduly exalted or sanguine of the result. I fear the conversation between us is impossible, but let me quote for him an authority whom he will probably respect. Professor Clifford Allbutt stated at Bradford a few weeks back in his address to the Sanitary Institute: "My prejudices are against such inheritance. For example, in my young days the dalesmen of Yorkshire drank prodigiously; drank like the Scandinavian heroes whose descendants they are. By drink they damaged their own lives badly; those stalwarts whom nothing but the scythe of time could mow down lived to great ages in spite of the drink; they were bound for longevity and not rarely they made it; but the majority had poisoned themselves by threescore. Yet I noted in them no deterioration of race; generally their youths maintained the same promise of great stature, of energy, and of courage as their forefathers."

Let me, then, implore these gentlemen, who certainly seem very confident and should therefore be able to justify their assertions, to afford us the opportunity of examining their evidence. Above all, let me implore them to present it in such a form that there can be no suspicion of confusion between *post hoc* and *propter hoc*. By way of incentive let me remind them of the tremendous importance of their labour if successful. It will revolutionise biological science. It will raise them to a pinnacle of fame. Many of the acutest minds in the world for a score of years have sought for and failed to find the evidence they have seen "every day" and "in hundreds of cases." In the, I fear, very probable event of the non-production of this evidence I am compelled, most reluctantly but still most categorically, to charge them with a total and by no means creditable neglect of the vast amount of definite work that has been accomplished by biologists, and with an intolerant disregard of conclusive evidence drawn from their own sciences, even when placed before them in the clearest light. I am perfectly aware of, and greatly regret, the arrogant and even offensive nature of this declaration, but I [illegible] n out of an at [illegible] either they ar[illegible] will revolutionise the science of the last half century, or they are, scientifically speaking, in a backwater from which it is high time they emerged.

I am, Sirs, yours faithfully,

Southsea, August 9th, 1903. G. ARCHDALL REID.

To the Editors of THE LANCET.

SIRS,—It has long been a matter of comment that so very little of the logical faculty is sufficient for those who conduct the affairs of a nation. It would seem that even less is needed to conduct a discussion upon a scientific subject. I will not now enter upon the merits of the question at issue between Dr. J. Wiglesworth on the one hand and Dr. G. Archdall Reid and Dr. C. R. Niven on the other, but if you will allow me I will show how Dr. Niven's letter in THE LANCET of August 15th (p. 494) appears to a humble student of logic.

> If parental drinking [illegible]
> and as these would in[illegible]
> expect that those races [illegible]
> ance with alcohol would [illegible]
> death rate from alcohol [illegible]
> acquaintance with it. [illegible]
> the same result would ensue—that is, extermination of the race.

By a parity of reasoning, if a long neck in a giraffe led to increased length of neck in the offspring every giraffe would now carry his head as high as the cross of St. Paul's. So easy is it to procure a *reductio ad absurdum* by ignoring essential conditions—in this case counteracting circumstances. The *non sequitur* is followed by a *petitio principii*.

> [illegible] erm cell
> [illegible] e varied
> [illegible] d.

The next is not among the recognised fallacies enumerated in books on logic but it is not of Dr. Niven's invention. It was used in Newton's time to refute the absurd theory of universal gravitation.

[illegible]

"There has not been any evidence advanced worth the time spent in examination." As an argument I admit that this is irrefutable. As a statement of fact it is—well, it leaves something to be desired.

> fil[illegible]
> th[illegible]
> th[illegible]
> ex[illegible]
> on[illegible]
> of environment.

This appears at first to be a case of *ignoratio elenchi*, but on examination it is found to be a neat example of the *fallacia a dicto secundum quid et dictum simpliciter*, the *secundum quid*, that the environment of germs is not the sole cause of variation of the offspring, being ignored.

"We know, however, that no two members of the same litter correspond in any one character or trait." True, indeed! When did ever two kittens or puppies have the same number of legs or tails?

> [illegible] show
> [illegible] tue of
> [illegible] igious
> [illegible] rs we
> [illegible] ledge,
> belief, art, morals, law, customs, &c.

Here is the *ignoratio elenchi* with a vengeance. The bearing of these considerations upon the effect of parental *intemperance upon the offspring is, indeed, obvious, but to* make our view complete should we not also take into consideration the phases of the moon, the bank-rate, and the birds and the blossoms of spring, tra la?

And now, Sirs, let me leave the question of logical correctness and ask in all sincerity for information at the hands of Dr. Reid and Dr. Niven. We acknowledge freely and unreservedly their wealth of knowledge and their dialectical skill. We admit that in comparison with them we are but worms, but why do they address their opponents in the tone of Almighty God addressing a peculiarly ignorant and recalcitrant black-beetle? After all, if a man does hold that acquired qualities are heritable he is still one of God's creatures.

I am, Sirs, yours faithfully,

Catford, August 15th, 1903. CHAS. MERCIER.

To the Editors of THE LANCET.

SIRS,—It is not always an easy matter in a controversy to place oneself in the mental attitude of one's opponent, but the perverseness with which Dr. C. R. Niven continues to misrepresent my position is remarkable. In his last letter[1] Dr. Niven states that I believe and claim to have proved by my statistics "that parental drinking leads to increased desire for alcohol as well as to increased mental instability in the offspring." It would naturally be supposed from this statement that I had expressed an opinion to the effect *that parental drinking leads to increased desire for alcohol in the offspring.* Nevertheless for this statement of Dr. Niven there is not the smallest shadow of justification. I not only do not hold that opinion, but I have nowhere given any indication that I do so. There is not a line in either of my two letters[2] referring to any increased desire for alcohol being produced in the offspring by parental drinking. There is no suggestion to that effect. The subject is not even alluded to. What I did say was that, in my opinion, the molecules of the germ cells of the parent were capable of having their development modified by the circulation of alcohol in the blood in such a way as to cause the organism resulting therefrom to develop on abnormal lines in the direction of mental instability. This is a statement of a wholly different character from that which Dr. Niven represents me to have made. It implies a *general* influence on the germ plasm by the action of the poison and not a special or specific one in the sense that the changes produced in the offspring are the same as those produced in the parent, which I have nowhere argued in favour of, and the assumption that I have done so is quite unwarrantable on Dr. Niven's part. The reason why a general agent such as alcohol acting on the germ plasm may be capable of producing mental instability in the offspring is not far to seek. The molecules of the germ cells which determine the development of those portions of the cerebral centres which subserve the mental activities constitute the latest formed portions of the germ plasm; they are of comparatively recent development in the race and are, in consequence, the most unstable portions and are therefore the most liable to give way under adverse conditions. If germ cells are forced to develop in a vitiated nutrient medium, one sufficiently impure to retard their activities without destroying them, it scarcely admits of doubt that the most stable, most deeply organised, and most resistant portions of these germ cells are those which will suffer least, and that the stress will fall mainly upon the least organised, most specialised, and least resistant portions. That the higher cerebral centres then should have their development adversely modified under the conditions postulated is only what we might expect. But I note that Dr. Niven does not deny that changes may be produced in the offspring by the circulation of poisons in the blood of the parent, for he says: "It is not denied that the offspring developed from germ cells may be influenced in this or that possible or probable direction by injurious agents—for example, alcohol—circulating in the parent's blood." And again, "With regard to permanent alterations being produced in germ cells and the resulting offspring from poisons, &c., circulating in the blood, this is probably correct." But this really concedes the main point under discussion, the very thing I have been arguing in favour of. It is the point which Dr. Reid denies in his letter of July 4th, p. 56, which started this discussion, for in that letter Dr. Reid quite clearly gives it as his opinion that offspring are *not* permanently injured by the fact that the germ cells from which they arose having been developed in a medium vitiated by the presence of alcohol, opium, or other poisons. From the ardour with which Dr. Niven espoused Dr. Reid's cause I was led to suppose that he also held that opinion, but I note now that this is not so but that, on the contrary, he differs from Dr. Reid and agrees with me on this important point which is really the root and kernel of the whole discussion. I am, Sirs, yours faithfully,

---

[1] THE LANCET, August 15th, p. 494.

Rainhill, August 16th, 1903. J. WIGLESWORTH.

To the Editors of THE LANCET.

SIRS,—In THE LANCET lately there has appeared repeatedly an argument which Dr. G. Archdall Reid sums up as follows: "If parental disease affected the offspring subsequently born then the morbid condition thus reproduced in the offspring would be a congenital one and such congenital morbid conditions would, according to biological law, be transmitted to the descendants of the said offspring. Under such conditions a race afflicted by any disease would undergo rapid degeneration and ultimate extinction. We know that this is not the case."[3] Without further elucidation this is not a very convincing argument because it assumes that no other influence can counteract the ill effects of transmission. In order to maintain his ground Dr. Reid must show that degeneracy due to an acquired morbid condition of the parent would be necessarily more potent than any counteracting influence—e.g., the elimination of the unfit. For example, if 20 per cent. of a community were swept off by an epidemic is it impossible that such a removal of the weak and susceptible would have a more powerful effect on future generations than an injury to some of the offspring of the survivors? It certainly seems unsafe on such flimsy theoretical grounds to reject any positive evidence that may exist—e.g., that idiocy is common in the offspring of alcoholic parents. I am, Sirs, yours faithfully,

Tollington-park, N., August 17th 1903. C. E. SCUDAMORE.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—Whether this treatment is entirely new or not (it will be seen on reference to my letter in THE LANCET of July 18th, p. 185, that the opinion that it was new was given on much higher and more experienced authority than my own) is of much less importance than the fact, which is not open to question, that it has not heretofore met with any general recognition. Possibly "there is nothing new under the sun" and a reference to it may yet be found in some ancient Chaldaic or Egyptian manuscript. I see in the *British Medical Journal* of August 15th that the microbe of plague was apparently known 14 centuries ago! The treatment is not referred to in any general text-book in common use that I have seen (Roberts's Medicine, sixth edition; Gibson's Medicine, 1901; Whitla's Dictionary of Treatment, 1901; Heath's Dictionary, &c.). Moreover, in patients in my own practice who have gone elsewhere for special advice never has this treatment been suggested to them, but they have come back with varying prescriptions or a cautious recommendation regarding surgical interference.

Perhaps the present correspondence will draw more marked attention to the matter. It seems desirable that in every case this simple methods should be given a fair and thorough trial for a few months before recourse to drugs or more radical measures. Even in exophthalmic goitre the treatment should be given a trial. My experience teaches me that there is no very clear line of demarcation between the two classes of cases; all gradations are met with between the extremes and it may well be that the same agent is responsible for both, acting in different circumstances and on different constitutions.

I may say that there is, so far as I know, no iron or sulphide contamination in the water here. So many minerals are now occasionally used in therapeutics that one thinks any connexion of the disease with any one of them would ere now have been noted if it existed. Therefore one has to fall back upon a microbic theory as probable. I have at present another cases of long-standing goitre with distressing symptoms which came under my care only a month ago. Under the rain-water treatment carefully carried out, the patient is already much relieved and the bronchocele is reduced in size.

I am, Sirs, yours faithfully,
C. A. RAYNE, M.D. Lond. &c.,

Lancaster, August 16th, 1903.

HUMAN AND BOVINE TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—In the account of my paper introducing the above subject at Swansea in THE LANCET of August 15th, p. 473, there is a slight inaccuracy which I ask to be put right. The account says: "Dr. Nathan Raw stated that he agreed with Koch that human and bovine tuberculosis were distinct diseases, although a similar bacillus was found in each. He believed strongly that bovine tubercle could be transmitted to man, although human tubercle could not be conveyed to cattle."

My opinions, which may have been badly expressed, are—that whilst the experimental evidence is at present in favour of Koch in stating that human and bovine tubercle are separate and distinct diseases my own impression is that they are rather *different varieties of the same species* producing a different train of symptoms in the human body. Human tubercle can undoubtedly be conveyed to cattle but not to any general extent, and I think I have produced considerable evidence in favour of my thesis that bovine tubercle is frequently conveyed to the human, more especially to children, by means of infected cow's milk.

---

[2] THE LANCET of July 18th, p. 186, and August 1st, 1903, p 310.

[3] THE LANCET, August 15th, 1903, p. 469

I am, Sirs, yours faithfully,
Liverpool, August 17th, 1903. NATHAN RAW.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

To the Editors of THE LANCET.

SIRS,—With reference to the "Problem in Medico-Legal Psychology," stated by Mr. J. S. Mackintosh in THE LANCET of August 15th, p. 451, is it not a fact that there has been within a short period of the case referred to *two* other cases of shooting of clergymen in very similar circumstances? I believe that a search of the file of the daily papers would show this to be the fact, as I was much struck by the sequence at the time, and the first case was that of an acquaintance of my own. The first case was much "billed" by the evening papers, which goes (I take it) to justify further Mr. Mackintosh's surmise.

I am, Sirs, yours faithfully,
August 15th, 1903. F. F. M.

THE SERVICES.

ARMY MEDICAL STAFF.

Surgeon-General W. S. M. Price is placed on retired pay. Dated August 11th, 1903.

ROYAL ARMY MEDICAL CORPS.

Colonel R. Exham, C.M.G., retires on retired pay (dated August 19th, 1903); Major R. J. McCormack retires on retired pay (dated August 19th, 1903); Captain P. J. Nunnerley, from half-pay, is placed on retired pay (dated July 26th, 1903); and Lieutenant-Colonel M. D. O'Connell retires on retired pay (dated August 15th, 1903).

The grant of the temporary rank of Surgeon-Captain in the Army to Surgeon-Captain (temporary Surgeon-Lieutenant in the Army) H. N. A. Taylor, 3rd Volunteer Battalion the Essex Regiment, bears date Dec. 30th, 1902.

ROYAL ARMY MEDICAL COLLEGE.

Captain C. E. P. Fowler, R.A.M.C., to be Assistant Professor, vice Major W. H. Horrocks, R.A.M.C., who has vacated that appointment. Dated July 29th, 1903.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Cheshire and Carnarvonshire: Captain J. Oldershaw resigns his commission. Dated August 15th, 1903.

Rifle: 3rd Volunteer Battalion the King's (Liverpool Regiment): Surgeon-Lieutenant H. D'A. Blumberg to be Surgeon-Captain. Dated August 15th, 1903. 3rd Volunteer Battalion the Lincolnshire Regiment: Surgeon-Lieutenant J. M. Duncan to be Surgeon-Captain. Dated July 4th, 1903. 2nd Volunteer Battalion the Worcestershire Regiment: Surgeon-Lieutenant C. A. Corke to be Surgeon-Captain. Dated August 15th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Aberdeen Company: Lieutenant J. D. Noble, from the Gordon Volunteer Infantry Brigade Bearer Company, to be Lieutenant. *Dated August 15th, 1903.*

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

Gordon: Lieutenant F. Kelly, from the Royal Army Medical Corps (Volunteers), the Aberdeen Company, to be Lieutenant and to command under paragraph 55A Volunteer Regulations. Dated August 15th, 1903.

THE FRAUENSPITAL AT ZURICH.

(FROM A CORRESPONDENT.)

I HAVE thought that a description of the Frauenspital at Zurich would be interesting to readers of THE LANCET.

This hospital is often termed the Pflegerinnenschule or Training School for Nurses, for at the back of the whole hospital scheme lay the idea that women require training and guidance to nurse successfully even the sick in their own homes. The hospital was added to the nursing department, much as a practising school is added to a normal college, to give the students opportunities of observation and practice. This idea first occurred to Dr. Anna Heer, a medical woman established in Zürich, in 1896, probably *not without some* experience of the necessity for having medical instructions faithfully and intelligently carried out in her patients' interests. The Swiss Ladies' Society, the Frauenverein, had by this time successfully effected many useful pieces of public work, such as establishing a home for the training of servants, a school of housewifery, *crèches* for children, of which three are in Zürich, the supplying of lady helps, and so forth. Dr. Anna Heer therefore addressed herself to the Frauenverein which discussed the subject *at Geneva in 1896 during the exhibition season.* A committee of 19 ladies, known as the Krankenpflege (care of the sick) Committee, was formed from all parts of Switzerland, seven residing in or near Zürich. Here, too, Dr. Heer found a most able assistant in Fraulein Ida Schneider who zealously took up the correspondence and heartily coöperated with her. Dr. Marie Heim, also practising in Zürich and now consulting physician in the children's department of the hospital, was another earnest fellow worker who played a most important part in the *launching of the scheme.*

Before deciding on the plan to be adopted for the new building Dr. Heer and Fräulein Schneider travelled to Vienna, Berlin, Hamburg, Paris, Stettin, and elsewhere for the purpose of examining the special features of the hospitals in these cities. The site was selected in a new and hilly suburb of Zurich, Hottingen. It cost 124,000 francs, although a generous municipality let the committee off a third of the cost as its work was one of mercy. There is no hospital proper like it in Switzerland, Germany, or France, still less in England, sanatoriums and such institutions not being referred to. It is a handsome red brick building standing in its own pleasant grounds, with three wings at the back and very large verandahs at each end projecting to the front. The hospital is four storeys high, each storey being devoted to a special purpose—namely, (*a*) the ground floor for accouchements; (*b*) the first floor for operations and the special diseases of females; (*c*) the second floor for other diseases; and (*d*) the third floor for the nurses. Outside is a small laundry with three women at work. Nothing strikes a visitor to the hospital more than its lightness, brightness, and the excessive "modernity" of all its arrangements. The immense corridor at the back connecting the wings and the main building is a special feature. All the sick-rooms open into this. These are either single rooms, double, or small dormitories holding four or five persons. In every room there are electric light, a fixed basin supplied with hot and cold water, and heating apparatus. All the beds are white enamelled. All that is absolutely necessary for a bedroom is there and it is astonishing how much can be *dispensed with, including* carpets and hangings. The floors are highly polished. When it is advisable to take a patient into the open air wheels are fixed to the bed which, together with the patient, can be wheeled by a child on to the verandah. In all, the hospital usually accommodates about 140 persons, including 60 sick, 25 infants, 35 nurses, 10 of the medical and house staff, and 10 domestics.

The hospital is a paying hospital. In all the building there is only one free bed and it is a baby's. All other patients must pay. *In the private division a patient in a* single room pays from 8 to 10 francs daily and in a double room from 6 to 7 francs; in the public division prices range from 2 to 4 francs. The average cost for each patient in the hospital is 4 francs 20 centimes or 5 francs 15 centimes if the interest on the building is reckoned. The Frauenverein is poor, but it led off with the comparatively handsome subscription of 5000 francs. The canton and city of Zurich gave 50,000 francs. 1300 ladies have been persuaded to become members of the Stiftung *Schweizerische Pflegerinnenschule,* to pay a yearly subscription of at least 3 francs and more generally 5 francs, which yields 11,000 francs per annum. Generally the women are most enthusiastic for the hospital and so far the subscriptions have been regularly paid. The ladies gave besides these annual subscriptions a sum of 150,000 francs. They held a great bazaar in November, 1899, and raised 50,000 francs. Besides, the committee obtained a loan of 300,000 francs from private persons, paying only 3 per cent. interest. One lady advanced 125,000 francs of this sum. The man or a midwife and where they shall remain until the administration has made arrangements for the funeral. The medical man and the midwife can keep secret the name of the mother and her address provided they swear upon their oath that the birth of the fœtus in question took place really in their presence and in the arrondissement of the *mairie* at which the declaration is made.

August 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Bubonic Plague.

THE bubonic plague still exists in Sydney. An increase in the number of infected rats and mice is reported and one case has occurred in a human being. This is the first case since June of last year. The source of infection has not been traced so far. The destruction of rats is vigorously prosecuted. No case of plague having occurred in Brisbane for several weeks and no rats having been found infected since June 8th, that city has been declared to be free from the disease. All the other States of the Commonwealth remain free.

Outbreak of Small-pox in Launceston.

On June 5th a patient in the Launceston Hospital, supposed to be suffering from severe measles, died three days after admission. 14 days later a nurse from Melbourne was placed in the same ward and was attacked with similar symptoms. She died after a few days' illness. Then another nurse, a laundress, and two porters were attacked and it was then recognised that the disease was small-pox. Dr. Barnard, the house surgeon, was next infected, but with a modified form of the disease. Case after case was reported, some from the country, and over 20 have been attacked. All the patients and, so far as possible, all "contacts" have been strictly isolated. Launceston and Hobart have been declared infected ports and strict quarantine has been enforced on all shipping. People are rushing to be vaccinated all over Tasmania. Up to six years ago vaccination was compulsory in Tasmania; then the Act was amended by the introduction of a conscience clause. The result has been that the amount of vaccination has fallen off considerably. Victorian experience shows conclusively the value of compulsory vaccination. Although small-pox has several times been introduced into that State and dealt with by the officers of the board of health and medical men, nurses, and others have been brought into contact with the disease, not one has been infected, as they have all been protected by previous vaccination.

Typhoid Fever at Balmain.

The outbreak of typhoid fever at Balmain, referred to in a previous communication, though diminishing, still continues. The cause of the outbreak is so far undetermined and forms a matter of dispute between the municipal authorities, the board of health, and the board of water-supply and sewerage. A report on the subject has been received from the assistant medical officer (Dr. E. S. Stokes) in which it was stated that 160 cases of typhoid fever had occurred in Balmain from December of last year to June 13th of this year. During his investigations he had seen or heard nothing that would lead him to believe, or even to suspect, that the practitioners who had certified that the cases were typhoid fever had made any errors of diagnosis, as had been suggested by certain aldermen. As to whether the cases had been imported into the suburb from the city or outer districts, there had been no facts discovered to justify the assumption that they had. On the contrary, it appeared evident from a consideration of the facts brought to light during investigation that the infection had been received locally. With regard to a suggestion that the importation of South African blankets, soldiers' kits, &c., had had something to do with the outbreak, he could find no evidence that infected blankets or clothing had actually been brought into the State from South Africa, and, admitting the fact that such might have been introduced in small quantities, there were no facts to support the theory that the source of infection of the cases could be discovered in this direction. Dividing the area served by the sewers into two parts, one to the north and one to the south of Darling-street, in the northern half there are 113 ventilating shafts and 13 cases of typhoid fever, while in the southern half there are 137 ventilating shafts and 91 cases of typhoid fever respectively. Outside this area there are 56 cases, all of which may reasonably be considered to be beyond the influence of the ventilating shafts. Numerically, then, there is no constant relationship between the shafts and the cases of typhoid fever in Balmain. Moreover, as the sewers in Balmain are, in common with those of the other sewered portions of the metropolis, ventilated on the one system and as extended experience has shown that, consequent upon the establishment in various boroughs of proper sewers with the concomitant ventilating shafts and of efficient house connexions, the typhoid fever rate in the district has almost invariably been reduced to a minimum, it must be apparent for the above reasons alone that it would be going out of the way to seek for the cause of the typhoid fever in the sewer ventilations. Samples of the water have been bacteriologically examined and no direct or indirect evidence of the presence of typhoid bacilli has been found. Dr. Stokes concludes:—

> I have pointed out that such factors as water-supply, food supply, sewer air, &c., can be eliminated from the list of possible causes. There is strong evidence that local conditions and habits have been favourable to the spread of the disease. Undoubtedly the most important of these local conditions is the presence of places where the typhoid bacillus can find protection from its natural destroyer—sunlight, and which, in addition, afford a supply of suitable nutriment for it to draw upon. Badly constructed closets are one cause. ...... Personal habits may allow, and do allow in a good many instances, premises to fall into an insanitary condition, but what I want especially to refer to is not personal, but municipal, habits. The continued existence of typhoid in any district shows that the local authority has failed to comply with the requirements of the Health Act. Another local habit which favours the spread of typhoid is the absence or inadequacy of disinfection. I have, in my previous report, indicated the measures which I consider necessary for preventing the excessive amount of typhoid in Balmain. ...... If they are carried out the improvement of the sanitation of the borough will be a preventive of many other forms of ill-health which owe their origin to dirt.

Prevention of Tuberculosis in Victoria.

The Victorian Association for the Prevention and Cure of Consumption has published a statement of the work which it has done since its initiation. It has addressed municipal authorities all over the State on the subject of prevention and has received encouraging replies from the majority of them, these replies being followed in some instances by the enactment of by-laws. It has distributed a large number of circulars to the general public as well as to hospital authorities containing useful information in popular form. Recognising that the sanatorium accommodation now provided is totally inadequate the association approached the committee of the Victorian Sanatorium for Consumptives with offers of assistance. A joint committee was formed and journeys were undertaken with the object of determining the best possible site for a sanatorium. The result was a strong recommendation by the association to the sanatorium committee of a district conveniently situated with regard to railway facilities and eminently suited for a sanatorium site. It then devolved on the sanatorium committee, which has the money to spend, to take the further steps of securing the necessary land and of erecting suitable buildings. The committee of the Austin Hospital for Incurables was also approached to see if further accommodation could be provided there for advanced cases of tuberculosis. At Bendigo a conference has been held of representatives of various bodies and a subcommittee of the city council at the town hall to discuss means for taking united action with a view to cope with the spread of tuberculosis. It was decided to hold public meetings and to enlist the sympathies of friendly societies in disseminating knowledge of the disease and in educating the public as to its means of prevention.

Decline in the Birth-rate in Australasia.

Mr. T. A. Coghlan, Government Statistician of New South Wales, has published a pamphlet on the Decline in the Birth-rate of New South Wales. He is of opinion that for the last ten years the movement of population has been normal and a decline in natural increase is a fixed condition of Australian social progress. It appears that the fall in the birth-rate in Australia and in New Zealand, taken together, is such that there are annually fewer births by nearly 20,000 than would have occurred if the rates prevailing as late as ten years ago had had been maintained. Mr. Coghlan holds that a striking example of the decline can be drawn from New South Wales. In 1887 there were, he says, in this State 112,247 married women under the age of 45 years, in 1901 there were 149,247, yet the number of children born was about the same in each year. If, he argues, the influx of population from outside Australia, which is at present very slight, was to cease altogether the birth- and death-rates would probably adjust themselves as follows: [illegible] the population; death-rate 12·2 [illegible] and the natural increase of 14·8 p[illegible] en years ago the natural increase was 20·3 and 30 years ago it was 24 per 1000. The following are given as the legitimate birth-rates per 1000 married women under 45 years of age in each division of Australasia for the year 1901:—

Victoria	228 6	New Zealand	246·1
New South Wales	235·3	Queensland	254 0
South Australia	235 9	Tasmania...	260 0
West Australia	243·9		

In the year 1891 the average for Australasia was about 276 per 1000, while the average of the foregoing rates is 239. Dealing in a special way with New South Wales, Mr. Coghlan says:—"The following figures, which are deduced from the New South Wales experience, may be taken as exemplifying the condition of the States as a whole. They give the number of legitimate births to every 1000 married women under the age of 45 years during a period of 21 years; and from the persistent and regular character of the fall it may be surmised that the minimum has not even yet been reached and a further decline may be looked for:—

1881	336 3	1892	286 4
1882	330·5	1893	281·4
1833	333 6	1894	267·1
1834	346 2	1595	260·3
1835	341·7	1596	240·4
1826	338 9	1597	241·3
1887	333 4	1893	229 6
1888	328·8	1899	226 6
1589	304·2	1900	227 1
1890	304·7	1901	235 3
1891	288 7		

In the course of his essay Mr. Coghlan deals at length with a number of other questions equally related to the phenomena of child-birth. On the subject of sex he observes: "In an average year of every 10,000 children born in New South Wales 5134 will be males and 4866 females; the excess of male births is therefore 268, or 5·51 per cent. In no year has the number of females born exceeded that of the males, although the difference has sometimes been very slight." Dealing with the subject of illegitimacy the author quotes statistics to show that the average rate per 1000 was as follows: 1861, 15·29: 1866, 16·70; 1871, 16 67; 1876, 16·31; 1881, 17·45; 1886, 18 35; 1891, 18·11; 1896, 17 20; and 1901, 16·23. Commenting on these figures he remarks: "These figures make it quite clear that illegitimacy is not increasing in New South Wales and completely remove the false idea obtained by comparing the legitimate with the illegitimate natality."

July 6th.

DEATH FROM EATING YEW-LEAVES.—At the meeting of the Yeovil board of guardians held on August 14th it was reported that a pauper lunatic had died in the Wells Asylum from the effect of eating yew-leaves.

SEWAGE AND OYSTER BEDS.—At the meeting of the Falmouth town council held on August 13th, under the presidency of the mayor (Dr. W. Banks), a communication was read from the Local Government Board with reference to an application by the East Kerrier district council to borrow money for works of sewerage for that village. The Local Government Board thought it essential that the position of the oyster beds in the Penryn estuary should be considered in connexion with any sewage scheme. At present the water in which the oysters were laid was polluted, or liable to be polluted, by sewage from Flushing, Penryn, and Falmouth, and consequently it was essential that these three places should be so drained that no sewage should pass over the oyster beds. The Board suggested that there should be a conference of the three councils concerned to see if some joint scheme could be carried out to remedy the present state of affairs. The Falmouth town council eventually decided to confer with the other authorities.

THE SANDGATE "SANATORIA" FOR THE OPEN-AIR TREATMENT OF CONSUMPTION AND OTHER DISEASES OF THE CHEST.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

FOR a considerable number of years, ten at least, the career and exploits of a Mr. J. J. Jones have received the close attention of the editor of *Truth*. The details which have been published in the fearless and carefully edited columns of our contemporary have been such that if Mr. Jones had disproved them there is no doubt that a jury would have granted him very big damages. No proceedings, however, have been taken against *Truth*, as far as we know, in response to any of the many particulars which have been published and, in these circumstances, Mr. Jones's private character, his financial record and his reputation are things which have to be considered very gravely when he appears before the public as a philanthropist and desires to enlist the medical profession upon his side. In the earlier stages of his career Mr. Jones is stated to have carried on so-called religious work of the usual begging-letter type and in those days his proceedings did not come within the scope of THE LANCET. Now, however, he appears at the head of an extensive trade in the provision of what professes to be the outdoor treatment of consumption. A large number of circulars have been sent out to boards of guardians and to private practitioners offering to take in patients at a very low price and, as far as possible, to treat them according to the methods adopted at Nordrach, Davos-Platz, Leysin, and other places. Consequently the questions as to who Mr. Jones is and how far he is capable of accomplishing such promises become matters of considerable public importance, for already several thousand patients, I am given to understand, have passed through his hands.

According to the statements published from time to time in *Truth* Mr. Jones was of humble origin, working for his living first at Chepstow and then at Bristol. In the latter town he acquired some knowledge of religious and philanthropic work and this seemed to open to him better prospects. He came to London in 1874 and started what was called the "Homerton Mission." There is evidence to show that at first he was very poor, but in 1879 he was able to build an evangelical hall which cost £3500 and to open a coffee palace in High-street, Homerton. Then in 1880 a house was taken at Dover to serve as a convalescent home. While Mr. Jones was receiving from charitable subscribers money for all these enterprises he emerged from poverty, lived comfortably, and kept two servants. He was able to afford the luxury of running as candidate for the London School Board and sat on that body for three years. By 1885 he had purchased house property. From his convalescent home at Dover he may have cast an appreciative eye over Folkestone to Sandgate, for when a landslip occurred at the latter place he was able to profit by the panic this occasioned to acquire a good deal of property at very low prices. It is difficult in all the transactions to ascertain what was done and purchased by or for the charitable mission which Mr. Jones had founded, and of which he was the manager, and what he bought for himself out of his own private means. Nor is it easy to explain how he ever managed to acquire private means to any considerable amount. The explanation which he himself has given is that he married women with money. In 1888 he was condemned in the High Court to pay £200 damages and costs in an action for slander and false imprisonment brought against him by one of his neighbours at Sandgate, while he had to pay as well £150 to a second plaintiff. This did not visibly inconvenience him at the time, though in court he had the greatest difficulty to show how he could have become possessed of private means. The estate of his first wife, all told, seems to have amounted to only £50 and that of his second wife to the fifth share of £3000, and yet a year previously to his second marriage he had bought house property to the value, it is said, of £5000. It may be asked, What has all this to do with the Sandgate Sanatoriums? Well, Mr. Jones has no medical or scientific claim to manage sanatoriums, so that the public and the medical profession, who are invited to support him, have a right to know his antecedents. If these so-called sanatoriums are to receive alms from the public it is necessary to feel sure of Mr. Jones's commercial rectitude; if they are private speculations it is equally necessary to be certain that the patients are placed where they will obtain what they have paid for. I understand that Mr. Jones denies the receipt of subsidies from the public.

The property acquired at Sandgate was first utilised as convalescent homes when not occupied by Mr. Jones himself, his family, and his friends. The big building known as "Beach Rocks" was inaugurated at Easter, 1883, I believe, by Mr. Jones who entertained therein a party of friends. At the same time appeals such as the following were issued :—

> DEAR FRIENDS,—For the sake of Him who loved us, for the sake of the penniless around us, *will you aid us?* The work is a great one, the [illegible] e urgent, and we feel deeply our need of the [illegible] for the work in all its branches. May we ask [illegible] a prayer that the Lord would grant us His [illegible] l that He would be pleased to use our services for His own glory and the good of precious souls,

There is evidence to show that patients were refused admittance while the Jones family occupied eight beds in this institution. In 1888 he acquired an additional house called "Homestead" and two years later the patients were turned out of it to make room for Mr. Jones who then selected this place as his private residence. The gentleman who had inaugurated this home, protested, pointing out that the 52 convalescent women and children for whom this "magnificent home" had been designed were now turned into lodgings in the town. About ten years ago it became more and more evident that the charities for which Mr. Jones was supposed to be acting as manager had no real and effective councils, that there was no genuine control. The public exposure of these grievances led to the reconstruction of some of the charities. In the course of time the connexion between Mr. Jones and these charities was apparently severed. The two large properties, "Beach Rocks" and "Homestead," were sold, but there remained enough for Mr. Jones to stand before the public as a large property owner in Sandgate. He is now running his various enterprises on a commercial basis, though dealing constantly with a large number of sick or convalescent people, many of them belonging to the poorest classes. The question is whether a man with such a past record is a fit and proper person to be entrusted with the care of hundreds, perhaps of thousands, of sick and suffering people. On this score it must at once be acknowledged that opinions are divided. A well-known medical man at Folkestone thought that Mr. Jones was supplying a want and that on very moderate terms, so that his past might be condoned with advantage. But while undoubtedly it is more easy to criticise Mr. Jones's late career than to find fault with his present course of action, it is impossible not to feel that the superintendent of medical institutions ought to have a clean record. The situation presents a very serious problem.

Leaving the question of Mr. Jones's past aside I will endeavour to summarise the complaints that are now made, and then will describe what I was able to see of the present management and condition of the homes for consumptive patients. Perhaps because the object in view is commercial, it is necessary to cram into the houses the maximum amount of tenants; at any rate, when the summer season came round Mr. Jones combined the care of the sick with catering for "cheap trippers," holiday folk, and others. Of course there was a tendency to make the poorer patients give way to the richer holiday folk. A melancholy story was related to me of the removal of children during the night wrapped up in blankets so as to make room for "trippers" and of how the children cried in the street. Holiday folk are said to have slept in beds recently occupied by consumptive patients and one band of excursionists are alleged to have taken their tea prepared in an outhouse which served the purpose of a mortuary. Then *Truth* tells us that the "meals in a so-called sanatorium were cooked by a lady afflicted with cancer who slept in the kitchen and shared that apartment with a young assistant domestic bearing signs of a consumptive tendency." Many more such grievances, some sentimental and some very real, are related. Insanitary conditions are said to have arisen and there were cases of typhoid fever and diphtheria. The Brompton Hospital for Consumption and the West Ham guardians have ceased to send patients and children to these homes, and it is pointed out, as an ominous sign, that most of the present patients came from considerable distances—Wales, Yorkshire, Durham, in fact, parts of the country where little is known concerning Mr. Jones and his former exploits. It has required many hours to read all the complaints that have been printed against Mr. Jones and his institutions. It was, however, a different matter when it became a question of substantiating on the spot the accusations that I had heard and read. Probably with time and success has come improvement.

A local clergyman had written to show that officers and other persons holding excellent positions had been in the habit of residing at Prospect House but could do so no longer because this private house stands side by side with one of Mr. Jones's largest homes. An excellent connexion had been established during 30 years and was now lost because of the proximity of Mr. Jones's patients. Therefore I determined to stay at Prospect House so as to see for myself what inconveniences existed. Sandgate, many of my readers may know, consists practically of one main street which follows the line of the shore and is part of the road from Folkestone to Hythe. In the more central part of the town the houses for the most part have been built with gardens going right down to the sea. There is no beach. The shore is of shingle, rather steep, and divided off at short distances by breakwaters or groins, so that it is not possible to take a walk along the beach and in front of the town. Two of the homes, Durnford House and Ontario House, are thus situated with no public frontage but the shingle, and when children suffering from ophthalmia and ringworm were located in Ontario House they naturally played on a little bit of shingle that faced their house. Of course, the immediate neighbours disliked such an unpleasant proximity. Then the consumptive patients spit over the garden wall on the shingle below, where the sputum remains, unless there is a very high tide, until it is dry, when it may be blown as dust towards the open windows of the other houses.

At the extreme west of the town the houses are not built right up against the shore and on both sides of the road. There are only houses on the inland side of the road; on the other side there is a sea-wall promenade and then the sea. It is here that Prospect House is situated and is only separated by its wall from Grosvenor House which is the largest home Mr. Jones possesses. According to his own statement it contains 46 beds. This place was used promiscuously as a sort of hotel, as a hospital, and as a convalescent home, according to the exigencies of the moment; but after trying his hand at many things Mr. Jones seems to be specialising more and more exclusively in what he calls the outdoor treatment of consumption. Grosvenor House he has now devoted to the outdoor treatment of those consumptive patients who are intrusted to him by Poor-law guardians. They should not, he suggests, be called paupers and though in the legal sense they undoubtedly are paupers, in the social sense they are of a somewhat better class than what is generally understood by the term "pauper." In many instances it could not be expected that they would do otherwise than apply for State relief when suffering from a wasting and almost hopeless disease. I visited them and to me they seemed a very quiet and somewhat subdued collection of invalids. They were clean and tidy and made the best of their cheap, rough clothing. It is not very cheerful to have 46 sick patients for next door neighbours, and no doubt Prospect House has suffered from this feeling, but I doubt whether 46 patients belonging to some more prosperous class would behave better and create less trouble than these paupers. The cry against them at Sandgate is loud and strong, but as far as it is directed against them as paupers it is uncharitable. It is said that they invade the public seats and expectorate all round, so that visitors and the healthy inhabitants do not dare go near. Certainly there is a glass sheltered public seat and refuge just opposite Grosvenor House which I was able to watch constantly from my window. Some of the paupers did sit there; I never saw any of them spit on the surrounding asphalt, but I did see them get up from their seats and walk to the edge of the sea wall so as to spit on the shingle below. This they should not have done but ought to have used the pocket spittoons that are provided. Every morning a scavenger came and swept round these seats. This again was wrong. Such sweeping is of no use, it merely helps to scatter still further whatever germs there may be. The places frequented by tuberculous patients should be wiped down or scoured out with a strong liquid disinfectant. The object should be to sterilise the dust and not to scatter it about. However and whatever may be done it is impossible to have a large number of tuberculous patients, wandering listlessly about in a small locality with little or nothing to do unless it be to expectorate occasionally, without some inconvenience, some nuisance, and even danger arising. It would be incorrect, however, to say that no attempt is made to reduce this cause of complaint. The following is printed in large type and posted in all the homes:—

VERY SPECIAL NOTICE.

ome,
habit.
to be
s and

There exists in the town of Sandgate and neighbourhood a very strong prejudice and a feeling of danger at our having patients in the homes who act as if they did not think of the safety and comfort of others.

Kindly help in removing this prejudice and oblige J. J. JONES.

The patients, I was assured, were threatened with expulsion if they did not observe the above injunction, while, on the other hand, I was also assured by others that it did not prevent constant expectoration on the thoroughfare. The truth is perhaps to be found between both statements. A check has perhaps been established but it is not always effective. A by-law rendering expectoration in public places illegal followed by a few sharp prosecutions would doubtless produce better results. But in answer to an application in regard to the enactment of such a by-law the Local Government Board wrote to the Sandgate authorities that it was not aware of any provision by which the urban district council was empowered to deal with the nuisance caused by expectorating in the streets. By-laws for good rule and government might be made by the town council of a borough under Section 23 of the Municipal Corporation Act, 1882, and county councils had the same powers under Section 16 of the Local Government Act, 1888. Consequently all the local authorities of Sandgate can do is to invoke the intervention of the county council.

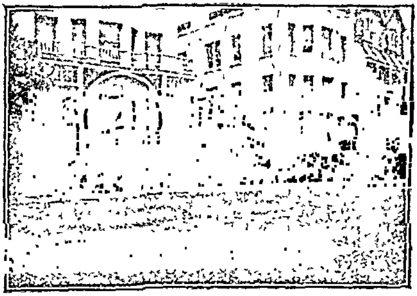
The grievance about expectoration is, however, mere skirmishing round the main issue. The fundamental trouble is that a number of private houses situated in the main street and most crowded portion of the town have been converted into hospitals. These houses were not built for such a purpose. They are residential dwellings for private individuals or holiday guests, and instead of the ordinary visitor they now accommodate a class of patients who are well enough to frequent the streets and beach, while they may be the means of spreading disease. This frightens the ordinary frequenter of the town and consequently trade is deteriorating and the value of house property is falling rapidly. In view of this state of affairs Mr. Jones has a printed notice to the following effect:—

SPECIAL NOTICE.

Patients are respectfully requested NOT to use the Public Shelters and Seats. Shelters are provided on the premises of the Sanatoria and Homes in which Patients are residing. Many of the Visitors and Residents are nervous if they think they are sitting near anyone suffering from any Disease of the Chest. I am sure no Patient in connexion with our Establishments will do anything to cause annoyance or alarm.

This somewhat grandiloquent proclamation brings me face to face with the real grievance,—the homes in question are not sanatoriums and the shelters there provided are in no wise sufficient. My first visit was to Grosvenor House and I was accompanied by Dr. C. E. Perry, the medical officer of health, and Mr. Broadley, the district surveyor. The rooms and dormitories were clean. The closets were in a good condition, the only fault being that one closet had no direct outside ventilation. In regard to space, if viewed as a lodging house it is not overcrowded; as a hospital I should say distinctly that it is overcrowded; and here is the whole point. Are these places hospitals or are they private lodging houses? The fact that circulars are issued professing to supply open-air treatment and implying that this treatment is the same as at Nordrach suggests buildings constructed for the purpose in the midst of extensive grounds. Nothing of the sort exists at Sandgate. Private houses quite unsuitable for the purpose are used and these are situated in crowded thoroughfares and have no surrounding grounds whatsoever. There is no outdoor treatment and there can be no outdoor treatment unless it be in the public street and at the public expense. Courtyard treatment and open window treatment are the most that can be offered; but the courtyard treatment interferes with the open window treatment. At Grosvenor House, to enable the patients to remain in the courtyard when the weather is bad a verandah glass shelter has been built on either side. Consequently the windows behind the verandah can only be opened at the top for a short space and it is in this part of the building that the patients sleep in cubicles which must interfere with the circulation of the air. All this, however, is perfectly legal. It cannot be shown that it causes a nuisance. There are thousands, there are hundreds of thousands, of poor people in this country who are quite as ill as the occupants of Grosvenor House and yet who live and sleep in far more unwholesome and unsuitable places. To them Grosvenor House would seem as a paradise, while to those who know what the proper housing of a large number of tuberculous patients should be it seems very much the reverse.

FIG. 1.



The situation created by Mr. Jones in thus using transformed private houses as hospitals is, it will be seen, a very curious one, whether it is regarded medically or legally. There is apparently no medical treatment whatever as part of the routine pursued at the homes. A legal question that might be raised is whether the circulars issued do not convey an erroneous impression on the subject. If a nuisance was created or an insanitary area brought into existence then proceedings might be taken; but the medical officer of health declares that Mr. Jones never refuses to effect any alteration that may improve the sanitary condition of his homes, that the general health of Sandgate is exceptionally good, and that there is no evidence to show that illness has been spread among the general population by the presence of so many patients. A conviction on sanitary grounds cannot be obtained without medical evidence proving the existence of a nuisance. No such evidence is forthcoming. Indeed, it would be difficult to keep such premises in better order in the circumstances or to provide them with a better supply of air. The premises themselves are absolutely unsuitable, for they are not hospitals but badly situated private houses. On the other hand, apart from the open windows, all the walls are pierced and numerous large ventilators are made that cannot be closed, while on the other side of the rooms large holes are drilled through the top of the doors so that even if the windows were closed there would still be a through draught. But when we come to the question of outdoor treatment, where are the patients to go? There is, perhaps, more accommodation at Grosvenor House than elsewhere, so I again choose Grosvenor House for my illustration, yet it only consists of a little terrace in front of the house and a yard This overlooks the main road where tramcars and motor-cars and carriages of all sorts are constantly passing and stirring up the dust. This is no place for patients to be laid out on beds to sleep or to lie in the direct rays of the sun. Whoever heard of the treatment of consumption on a high road, with the patients just raised a little so that the clouds of dust caused by the carriages may more easily reach

Obituary.

GEORGE WILLIAM BALFOUR, M.D., LL.D. EDIN. AND ST. AND., F.R C.P. EDIN., F.R.S. EDIN., M.R.C.V.S.

GEORGE WILLIAM BALFOUR, by whose death in his eighty-first year a notable figure has been removed from the ranks of medicine, was the sixth son of Dr. Lewis Balfour, a well-known Scottish divine and the parish minister of Colinton, the picturesque village in the neighbourhood of Edinburgh to which Dr. George Balfour retired some years ago and where he died. Through his paternal grandmother, Jean Whytt, he was the great-grandson of the distinguished physiologist and professor of medicine in the University of Edinburgh, Robert Whytt of Bennochy, who was likewise the ancestor of the popular novelist, Major White-Melville. Balfour seems originally to have intended practising as a veterinary surgeon, for he qualified at the Royal Veterinary College in 1843. He can scarcely have practised much as such, however, for he appears to have become a Licentiate in Surgery in 1845 and in the same year graduated as Doctor of Medicine at the University of St. Andrews. He then settled in practice at the village of Cramond, near Edinburgh, where he remained for a considerable period, the area of his activity extending well beyond that spot and reaching to Edinburgh, the larger sphere of which was bound sooner or later to exercise its attractive power on one so well calculated to reach and to adorn the foremost rank in his profession. There he finally found himself and there the world ultimately "found" him. In 1861 he became a Fellow of the Royal College of Physicians of Edinburgh, in which body he became an active and influential member and in 1882 one of its most distinguished presidents. He was also for many years the honorary librarian to the College, a post well suited for one of his great literary power and acquirements. He became attached as a physician to the Edinburgh Royal Infirmary when that cradle of so many sound practitioners numbered among its teachers men whose names, still dear to old Edinburgh students, will long outlast their own generation.

As a teacher Dr. Balfour was much appreciated by his students and his published lectures are a permanent evidence of his power to those who had not the advantage of his personal instruction. Commencing his study of nature, as we have remarked, outside the sphere of human medicine, and practising for long as a general practitioner, Dr. Balfour was a distinguished example of the evolution of a career from the general to the particular in medicine. The length of art and the shortness of life in the modern condition of things impose upon those who would have a deeper knowledge of the science and practice of their art some narrowing or accentuation, in due season, of their field of activity and Dr. Balfour found himself attracted by degrees, and more and more so as time went on, to a study of the disorders of the circulation. Apart from his own predilections and general capabilities for this development, he was well prepared for it by a good knowledge of the literature of European medicine. At a time when the knowledge of German was not so common as at present, he translated for the New Sydenham Society from 1861 to 1865 Casper's classical work on the Practice of Forensic Medicine, in four volumes, and even at a later period some continental authorities have been fortunate enough to find their work presented to English readers by his facile, judicious, and courteous pen. For while Dr. George Balfour was a level-headed man who could usually take a correct measure of men and things with a cool and penetrating scrutiny, and could also at times express his conclusions when unfavourable in language more pointed than agreeable to the criticised, he was withal a "kindly Scot" in more senses than one, a "man of feeling," and even a poet. In the midst of dry and accurate detail, those who are acquainted with his works know, that the crucible and scalpel could be pushed aside by him and a divine music of thought find expression in a living sentence. That this vein of poetry was latent in his blood may be argued from what has already been stated of his ancestry, and also *from the* fact that his own sister was the mother of Robert Louis Stevenson, whose early death has been so great a loss to English literature.

In 1876, on the death of Dr. Laycock, the professor of medicine in the University of Edinburgh, Dr. Balfour became a candidate for the chair. That he was not elected can in no wise surprise those who are cognisant of the influences sometimes operative in these circumstances, possibly everywhere, but certainly when the elective body is one largely composed of persons whose walk in life precludes their being able to form a sound judgment except at secondhand. That the dignity of the chair and the efficiency of the teaching would not have suffered had Dr. Balfour sat in the place where Cullen and his own ancestor, Whytt, had sat need not be insisted upon. Dr. Balfour's original study of diseases of the heart and blood-vessels is well known and his fame as a consultant in this domain of medicine was not limited to his own country, for his advice in these affections was sought far and wide. Having reached the appropriate period of life the fountains of literary honour in his own country were not slow to recognise his worth. The degree of Doctor of Laws was conferred upon him both by his own University of St. Andrews and by the University of Edinburgh. Nor was he overlooked by the Crown, for he was appointed one of the Physicians-in-Ordinary in Scotland to the late Queen and at the time of his death held the same office under our present King. Dr. Balfour does not appear to have rushed into print prematurely, as is at times the case. The first of his publications of which we have knowledge appears to have been a paper on Hæmatophobia, as he terms it, which is a historical sketch of the fear of blood-letting, with special reference to the treatment of pneumonia. It was published in 1858. From that date, however, until 1898, when the third edition of his Clinical Lectures on Diseases of the Heart and Aorta appeared, his pen was not idle. Of his works, as is natural, those by which he will probably be longest remembered are the lectures just mentioned and his monograph on the Senile Heart, its Symptoms, Sequelæ, and Treatment, which appeared in 1894, when the author in the fulness of his years was able to illustrate his words by a ripe and extensive experience of the condition in all classes of society.

Physically Dr. Balfour was tall, lithe, and of a handsome countenance and preserved even as a septuagenarian the free movement and graceful lineaments of youth. Indeed, until not more than a year before his death some years of hale and active life might have been predicted for him. But a recurrent pleurisy with effusion broke down his natural vigour and he ultimately died from cardiac failure on August 9th somewhat unexpectedly to those not intimately acquainted with his condition. Dr. Balfour was married three times and is survived by his widow and a family some of whom are members of the medical profession. He was buried in the beautiful old churchyard of Ratho, shaded by venerable trees and dotted over with emblems of an eternal hope, and in the burial ground of a well-known surgeon in his day—Mr. Craig of Ratho, whose daughter had been his first wife. The funeral was officially attended by officers and Fellows of his College and when the earth received his mortal remains those present felt that a long and honourable career had closed and one of the few remaining links, if not the last, snapped with what the middle aged man of to day fondly regards, perhaps with too great partiality, as the halcyon days of the Edinburgh School of Medicine.

WILLIAM SMOULT PLAYFAIR, M.D. EDIN., F.R.C.P. LOND., &c.

IT is with great regret that we have to announce the death of William Smoult Playfair, which took place at St. Andrews on August 13th. William Playfair was born in 1836 and was a son of the late George Playfair, Inspector-General of Hospitals, Bengal, and a younger brother of the late Lord Playfair. He was educated at St. Andrews and Edinburgh University, where he graduated as M.D. in 1856. In 1857 he entered the Bengal Army Medical Service as assistant surgeon and served in Oudh during the Mutiny. From 1859 to 1860 he was professor of surgery at the Calcutta Medical College, but the state of his health eventually compelled him to leave India and in 1863 he established himself in London, *having obtained the posts of obstetric* physician to King's College Hospital and of professor of obstetric medicine at

GEORGE WILLIAM BALFOUR, M.D., LL.D.

King's College. He held these offices until 1898, being also appointed physician-accoucheur to Her Imperial and Royal Highness the Duchess of Edinburgh. He wrote much upon subjects connected with his own department of medicine and his "Treatise on the Science and Practice of Midwifery" reached its ninth edition in 1898.

Dr. Playfair married a sister of Sir James Kitson and in 1896 he became involved in a *cause célèbre* in which an action for libel was brought against him by the wife of Sir James Kitson's younger brother, whom he attended professionally. In the course of his attendance he discovered certain symptoms which he interpreted in a certain way and he communicated the results of his examination and the conclusions which he drew from them to his wife, who in her turn communicated them to Sir James Kitson. Sir James Kitson's resulting action led to proceedings against Dr. Playfair for libel. The case was tried by Mr. Justice Hawkins and the jury awarded the plaintiff damages to the extent of £12,000. Leave was granted to appeal but the case was eventually settled by agreement between the parties.[1]

On Dr. Playfair's retirement in 1898 (he retired not because he had reached the age limit but, in his own words, because "having completed a quarter of a century's service as professor of obstetrics I think that it is high time to make way for others") from the professorial chair at King's College and from his active work as an obstetrician at King's College Hospital, it was felt by many of his colleagues that the occasion should be used to mark the esteem which they felt for one who for so long had been connected with the two institutions. Accordingly on July 4th of that year a complimentary dinner was held. Nearly 100 friends were present, amongst them being Sir Samuel Wilks, Sir Joseph Fayrer, Sir James Kitson, M.P., Sir William O. Priestley, M.P., Sir Dyce Duckworth, Sir Felix Semon, Sir Walter Foster, M.P., Dr. R. Farquharson, M.P., Bishop Barry, the Rev. Dr. Robertson (the Principal of King's College), the Rev. Dr. Wace, Dr. C. J. Cullingworth, Dr. Constantine Holman, Dr. E. F. Buzzard, Dr. W. J. Maclagan, Dr. Donald W. C. Hood, Dr. Thomas J. Walker (Peterborough), Dr. A. Nicholson (Brighton), Dr. J. Murphy (Sunderland), the staff of King's College and King's College Hospital, and a considerable number of former resident accoucheurs. The chair was occupied by Lord Lister who, in proposing the health of the guest of the evening, referred to his first acquaintance with Dr. Playfair 44 years ago. Dr. Playfair was then dresser to Mr. F. Syme and he (Lord Lister) was Syme's house surgeon. Referring to the trial in which Dr. Playfair had been recently concerned Lord Lister spoke of it as a travesty of justice which did not in the slightest degree diminish the esteem in which Dr. Playfair had previously been held. All those present, whether former students, former colleagues, or others, rejoiced in this opportunity of doing honour to Dr. Playfair and united in a cordial wish that his retirement from hospital and professorial duty might be followed by many years of health, prosperity, and happiness. Dr. Playfair, in answering the toast, said he could not refrain from making some remarks about the trial, and he might mention that Mr. Gladstone, to whom he was practically unknown, had done him the signal honour of writing to him a letter not marked private, so that he was justified in quoting it. In this letter Mr. Gladstone said: "Having most carefully studied all the evidence in this trial I can come to no other conclusion than that you have done neither more nor less than your duty."

Dr. Playfair made a number of communications to the various medical societies and to the pages of the medical journals. Amongst some of the more important of these were papers on the Treatment of Labour complicated by Ovarian Tumour; and Thrombosis and Embolism of the Pulmonary Artery as a Cause of Death in the Puerperal State. In Quain's Dictionary of Medicine he wrote the article on Diseases of the Womb, while to the Dictionary of Psychological Medicine he contributed the section on Systematic Treatment of Functional Neuroses. If in none of his writings he made any very noteworthy advance to our knowledge of the science or art of obstetric medicine he filled a very extremely useful place in medical literature by reason of his great clearness and ease of style. His book on Midwifery, which ran through nine editions, the last appearing in 1898, was for many years the most popular text-book and was widely read by students and practitioners. This book, while neither profound nor scientific in its treatment of the subject, yet was written in so readable a style that its popularity with students was unbounded. It is a great thing to write a book on a difficult subject which a student will face gladly and read often, and Dr. Playfair accomplished the feat. As co-editor with Professor Clifford Allbutt Dr. Playfair brought out the volume on Gynæcology issued in connexion with Allbutt's System of Medicine; and wrote in it the article dealing with the "Treatment of the Functional Neuroses in Women." It is more particularly with regard to this subject that the name of William Playfair will be remembered in this country. He was one of the first, if not the first, to bring to the notice of the profession the measures recommended to be used in the treatment of neurasthenia and known by the name of its originator as the Weir-Mitchell treatment. In the face of a good deal of opposition, and no doubt somewhat to the prejudice of his own reputation as an obstetric physician, Playfair was a staunch upholder of this mode of treatment, which in his hands at any rate gave most brilliant results. Not only by his practice and writings did he do much to teach the profession the correct treatment of this class of case, but he also did much to combat the erroneous impressions that were held as to the necessity for the large amount of local uterine treatment that was so prevalent but a few years ago. It may be that he was unduly optimistic about the "rest cure" and carried it to an extreme, but whether this be so or not there must be many hundreds of women in this country at the present day who have reason to bless the Weir-Mitchell treatment and the name of Playfair as that of the medical man who brought it to their notice. As a teacher Dr. Playfair had a clear and explicit style but was better suited by the lecture theatre than the bedside. His lectures were full of useful hints to the student and were of an eminently practical character. He had a most kind and courteous manner in his dealings with patients, practitioners, and students, and took a very keen interest in the career of those whom he saw to be zealous in their work. His kindness to members of his own profession and to nurses was proverbial. The profession of nursing, indeed, owes much to his exertions on its behalf. He played an important part in elevating the standard of nursing generally in London and more especially that of monthly nurses; and he spared no efforts in getting rid of the specimens of the Sarah Gamp class that were still in existence in his day. He never took any very great part in the administration of the affairs of his hospital or of the medical school except as regards the nursing. His opinions upon many matters were very defined and clear and when occasion arose he had no hesitation in speaking his mind.

His remains were buried on August 15th at St. Andrews in the new cemetery, where also rest the bodies of his two brothers—Lord Playfair and Sir Lambert Playfair. The Burial Office was said at the Episcopal church.

FREDERICK NORTON MANNING, M.D. ST. AND., M.R.C.S. ENG., L.S.A.

OUR Australian correspondent writes:—Australia has sustained a great and inestimable loss by the death of Dr. Frederick Norton Manning which took place on June 18th. Dr. Manning was one of those rare types of character that combine wide and deep knowledge, great administrative and organising capacity, with a kindly courteous personality that won him the affectionate esteem of all with whom he came in contact. He had the gift of imbuing his associates with some of his own enthusiasm and thus achieved great reforms in lunacy administration and the treatment of the insane. Dr. Manning, who was born in Northamptonshire in 1839, was originally a surgeon in the Royal Navy. He served in Australasian waters in the brig *Esk* and, while so employed, he took part in the first attack on the Gate Pah, Tauranga, New Zealand, during the Maori war. On that occasion the British were repulsed with heavy loss, Lieutenant-Colonel Hamilton and nearly all of the officers being killed. Dr. Manning himself had a narrow escape, for a wounded bluejacket was shot in his arms whilst he was carrying him to the shelter of a tree. In 1867, when he was 28 years of age, Dr. Manning was selected to reorganise and to remodel the State institutions for the insane. At the same time he was appointed medical superintendent of Gladesville Asylum and shortly afterwards he was sent on a mission to inspect similar institutions in England and on the Continent. He also visited America. He was away for about nine months and on his return issued an elaborate report which securely established his reputation as an authority on the treatment of mental affliction. This volume still remains as a standard work on the subject. Dr. Manning visited England again in 1875 and 1887 and on each occasion a valuable report was the result. At the period of Dr. Manning's appointment to the hospital at Gladesville that and the one at Parramatta were the only institutions in the State for the reception and treatment of the insane. Both were antiquated, but under the superintendence of Dr. Manning they were remodelled and, to a large extent, rebuilt. Later Dr. Manning designed the hospitals at Callan Park and Kenmore and these embody the results of his experience and skill. Kenmore, the last to be built, is regarded as an example of all that such an institution should be. He was also responsible for the Reception House at Darlinghurst, which was built in 1868 and which at the time was described as unique both as a monument to the designer's liberality of thought and to his care for the insane. The institution has proved of the utmost value and the model has been adopted in other countries. On the passing of the Lunacy Act of 1878 Dr. Manning, who in the meantime had become inspector of hospitals for the insane, was appointed to the larger position of inspector-general of the insane and he held this office for nearly 19 years. He was also appointed as visitor to court patients under the Lunacy Act—a position corresponding to that of the Lord Chancellor's visitor in England. He was at one time the president of the Board of Health and Medical Adviser to the Government, and later he was an ordinary member of the board. He was a trustee of the National Art Gallery, a director of the Equitable Life Assurance Society of the United States, lecturer in psychological medicine at the University of Sydney, and an honorary member of the Medico-Psychological Association of Great Britain and Ireland. Owing to failing health he resigned the inspector-generalship of the insane in February, 1898, when he was 59 years of age. His health was improved by a holiday trip to England and when he came back he entered into practice as a consultant in mental cases. In this connexion he was looked upon as one of the highest authorities in Australia and he frequently undertook professional visits to other States. He was never married and he leaves no relatives in Australia.

---

[1] The report of the case appeared in THE LANCET of March 28th (p. 869) and April 4th (p. 961), 1896.

WILLIAM BURNS MACDONALD, M.A., M.B., C.M. EDIN.

BY the sudden and unexpected death on August 2nd of Dr. W. B. Macdonald of Dunbar, at the age of 45 years, a large district has been bereft of one who, by his high character, his honourable conduct, and his unfailing kindliness and courtesy in the discharge of his multifarious duties, had earned for himself, without doubt, the designation of "a man greatly beloved." About a year ago Dr. Macdonald had a fall from his bicycle, which resulted in concussion. He remained unconscious for 48 hours and was incapacitated for two months when, although complaining a good deal of headache and languor, he resumed work. Finding himself unequal to the strain he was, without much difficulty, persuaded to undertake a long sea voyage. Accordingly in November he set out on a yachting cruise round the world and, with the exception of a few days at Fiji, he enjoyed excellent health and appeared to have entirely regained his former vigour. However, on leaving Gibraltar on the homeward voyage cerebral symptoms manifested themselves. He arrived off Cowes in a comatose condition and without regaining consciousness passed away on board the yacht on Sunday morning, August 2nd.

Dr. Macdonald was educated at the Edinburgh Academy and University; he graduated in arts before commencing his medical curriculum, in which his career was brilliant. He was medallist and first prizeman in the practice of medicine and also in practical pathology, besides winning six first-class and six second-class honour certificates. He graduated M.B. and C.M. with honours in 1882 and then undertook the duties of locum-tenens to the Rio Tinto Mines at Huelva, Spain, where, among his other duties, he had charge of a large hospital in which he performed a number of both major and minor operations successfully. On his return to Scotland he acted as assistant for some time to the late Dr. Moffat of Falkirk in a very extensive practice and then for three years was engaged in practice in Lossiemouth. In 1887 he took over the practice of Dr. Napier in Dunbar. He held the appointments of medical officer and medical officer of health to the parish councils of Dunbar and Spott, Innerwick, and Oldhamstocks, army medical officer during the annual training of the militia, Surgeon-Major in the Army Medical Reserve, and Admiralty surgeon and agent. Dr. Macdonald was a widely read and highly cultured scholar. He was a good linguist, was fond of travel, and had seen much of the world. A man of singularly gentle, winning, and kindly disposition, he greatly endeared himself to all with whom he came in contact

The funeral took place on August 5th at Dunbar, a service being held in the parish church. The military staff, local volunteers, town council, parish council, Oddfellows, and other public bodies were represented. Bells were tolled and all business was suspended. The remains were borne from the church by a military party and laid to rest in the cemetery. Dr. Macdonald, thus removed at the comparatively early age of 45 years, is survived by a widow and three children for whom the greatest sympathy is felt.

JOHN TATHAM, M.D. ST. AND., F.R.C.P. LOND.

THE news of Dr. Tatham's death will be received with great regret by the numerous friends which he made whilst in active work in London, particularly by those who were associated with him at the Hospital for Consumption and Diseases of the Chest, Brompton. Dr. Tatham received his medical education at the Middlesex Hospital and subsequently studied in Paris. He obtained the M.D. of St. Andrews University in 1862 and was elected a Fellow of the Royal College of Physicians of London in 1890. He was at one time physician to the West London Hospital and to the Royal Pimlico Dispensary. He was appointed assistant physician to the Hospital for Consumption and Diseases of the Chest, Brompton, in March, 1868; in 1875 he became physician and on his retirement from these active duties was elected a consulting physician. He took the most keen interest in all that appertained to the work of the hospital and devoted a large portion of his time to assisting in the work of organisation. His kindly manner to the patients was one of his marked characteristics and his geniality and hospitality will long be remembered by his colleagues and the juniors who assisted him in the wards. Dr. Tatham died on August 3rd at Lowfields, Burton-in-Lonsdale, his country residence.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Professor Immanuel Munk of the Berlin Physiological Institute.—Dr. Karl Hoffmann, professor of comparative anatomy and zoology in the University of Leyden.—Dr. Trzebicky, professor of surgery in the University of Cracow.—Dr. G. Marchand, surgeon to the Beaujon Hospital, Paris.—Dr. Konrad Gregor, for many years assistant in the University Clinic for Children's Diseases, Breslau.—Dr. Fischer, an alienist physician of Heidelberg.—Dr. Sigmund Fuchs, a well-known Vienna physiologist.—Dr. van Lith, formerly professor of mental diseases in the University of Utrecht.—Dr. Jean Roger, inspector of maritime sanitation in Egypt.—Dr. Chalot, professor of clinical surgery in Toulouse.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In August the following candidates passed in the subjects indicated:—

Surgery.—H. H. Clarke (Sections I. and II.), Cambridge, Liverpool, and St. Bartholomew's Hospital; A. N. Collier (Section II.), Manchester; M. B. Dawson (Section II.), Middlesex Hospital; F. Hansen, Copenhagen; J. M. King (Sections I. and II.), University College Hospital; N. O. Roberts (Section I.), Cambridge and St. Mary's Hospital, and A. C. Stark (Sections I. and II.), Westminster Hospital.

Medicine.—A. H. Falkner (Section I.), Cambridge and St. Mary's Hospital; F. Hansen (Section I.), Copenhagen, and A. C. Stark (Sections I. and II.), Westminster Hospital.

od, Birmingham; a

Liverpool, and St.
uy's Hospital; F.
Hospital; P. A.
t

Clarke, A. N. Collier, J. M. King, and A. C.

FOREIGN UNIVERSITY INTE
Professor Oskar Israel has been ap
Pathological Institute of the Charit
late Dr. Jurgens.—*Copenhagen:* Dr.
recognised as *privat-docent* of Phy
Oerum as *privat-docent* of Physiol
Dr. H. Strandgaard as *privat-docent* c
Dr. Stöckel has been recognised as
cology. Professor Dietrich Gerhardt of Strasburg has been appointed to the chair of the History of Medicine in succession to Dr. Fleischer.—*Gottingen:* Dr. Fleck has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Gratz:* Dr. Emil Knauer of Vienna has been appointed to the chair of Midwifery and Gynæcology.—*Heidelberg:* Dr. Hans Arnsperger has been recognised as *privat-docent* of Internal Medicine.—*Kiel:* Dr. Wandel has been recognised as *privat-docent* of Internal Medicine.—*Lille:* Dr. Carlier has been appointed professor of External Pathology and of Clinical Surgery of the Diseases of the Urinary Passages.—*Lyons:* Dr. Beauvisage has been appointed to the chair of Materia Medica and Botany.—*Montpellier:* Mdlle. Gaussel has been appointed physician in charge of the Gynæcological Clinic.—*Munich:* Dr. von Stubenrauch, *privat-docent* of Surgery, Dr. H. Durck, *privat-docent* of Pathological Anatomy, and Dr. F. Lange, *privat-docent* of Orthopædic Surgery, have been promoted to Extraordinary Professorships.—*Prague:* Dr. Hugo Huppert being about to retire from the chair of Medical Chemistry, Dr. R. von Zeynek of Vienna has been appointed to the post.—*Rome:* Dr. Vincenzo Giudiceandrea has been recognised as *privat-docent* of Internal Pathology and Dr. Luigi Martino Spolverini as *privat-docent* of Children's Diseases.—*Rostock:* Dr. Johannes Müller has been recognised as *privat-docent* of Physiology.—*Strasburg:* Dr. Rosenfeld has been recognised as *privat-docent* of Psychiatry
nedetto Morpurgo of Sienna
ir of General Pathology.—
been recognised as *privat-*
cology and Dr. W. Mitlacher
as *privat-docent* of Pharmacology.—*Würzburg:* Dr. Max Borst, *privat-docent* of Pathological Anatomy, has been promoted to an Extraordinary Professorship.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At the Assembly Rooms, Frome, on August 14th, Dr. C. Rawdon Wood was presented with a framed photograph of the Frome volunteer fire brigade as a mark of appreciation for his honorary services in connexion with the ambulance work of the brigade.—On August 10th Mr. R. R. P. S. Bowker was presented with a gold watch with a suitable inscription on it by a few friends at Abertillery. Mr. Bowker has left this town and intends returning to Australia in a few weeks' time.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, AUGUST 13TH.

Dogs for Experiments.

d for the purposes of
rpose would be served

Irish Medical Men and Poor-law Appointments.

Lord Lieutenant of
; that the council
members against
medical men outside the association seeking Irish Poor-law medical appointments and, if so, whether he would lay them upon the table.—Mr. WYNDHAM replied: Reports or regulations purporting to have been issued by the various local branches of the Irish Medical

ers to be
: I have
on these
be advan-
an oppor-

Medical Attendants of the Royal Irish Constabulary.

Infirmary Accommodation at Bristol.

The Indian Medical Service.

SIR MICHAEL FOSTER, speaking in the debate on the Indian Budget, said that within the last two or three years there had
been a marked and even
of cases of plague in Indi
Certain persons attributed t
mendations of the Plague
be he desired to urge on
was a matter of profound im
whole world. He urged the
India, most seriously to co
to lessen this grave increase.
country, cholera had its home there, small pox was supposed to have begun there, and the problems of disease required investiga-
tion to an even greater
ountry. It
was, then, of the greate
population
of India that the Indian
f the very
highest character and tha
should be
attracted to that wonderfu
t there was
considerable dissatisfaction
ilitary and
civil. When he spoke to his young friends of a great future for India they replied in their familiar language, "Not good enough." He believed that the Secretary for India had received a report, sanctioned by no less a body than the British Medical Association, detailing certain wants in the Indian Medical Service, military and civil. He would only refer to three. First, there had

sented on the Viceroy's council. If these defects were remedied it would remove a notable bar to the recruiting of bright intellects for the service.

FRIDAY, AUGUST 14TH.

Poisoning in a Prison.

chemist to this prison.—Mr. WYNDHAM replied: The hon. Member doubtless refers to the occurrence of January last in Maryborough prison. On that occasion a number of persons were taken ill from the effects of hellebore powder inadvertently placed in their food. The powder, which is not a scheduled poison, was not kept in the prison as a medicine, but in the general stores as an insecticide for use on the prison farm. No permanently injurious results followed. All medicines for the use of the inmates of the prison are under the charge of the medical officer who dispenses them. It is not considered necessary to give him the assistance of a pharmaceutical chemist.

Nurses for Workhouse Infirmaries.

Mr. Talbot asked the President of the Local Government Board whether he could give an assurance that no action would be taken with regard to the recognition of qualified nurses for workhouse infirmaries *until full opportunity* had been given for considering the objections taken to such appointments.—Mr. Long replied: I can assure my right hon. friend that no action will be taken without due consideration of all representations made to me in connexion with the report of the Departmental Committee.

BOOKS, ETC., RECEIVED.

Adlard and Son, 20, Hanover-square, W., and Bartholomew-close, E.C.

King's College Hospital Reports. Volume VIII. (Jan. 1st to Dec. 31st, 1901). Price 7*s.* 6*d.*

Administración en Casa del Autor, Atocha, 76, 1°, Madrid.

Tratamiento Curativo de la Tuberculosis Pulmonar. (Cuatro Años de Experimentación Clínica.) Por el Dr. Abdón Sánchez Herrero, Catedrático Numerario de Clínica Médica de la Facultad de Medicina de Madrid. Price not stated.

American Climatological Association (Secretary, Guy Hinsdale, M.D., 3943, Chestnut-street, Philadelphia).

Transactions of the American Climatological Association. For the year 1902. Volume XVIII. Price not stated.

Baillière, Tindall, and Cox, 8, Henrietta-street, Covent-garden, W.C.

Aids to the Feeding and Hygiene of Infants and Children. By John McCaw, M.D., L.R.C.P., Senior Physician to the Belfast Hospital for Sick Children, Queen-street. Price 2*s.* 6*d.*

Churchill, J. & A., 7, Great Marlborough-street, W.

Lessons in Disinfection and Sterilisation. By F. W. Andrewes, M.A., M.D. Oxon., F.R.C.P. Lond., D.P.H. Cantab., Lecturer on Pathology, Pathologist and Sanitary Officer to St. Bartholomew's Hospital, London. Price 3*s.* net.

Serum Therapy, Bacterial Therapeutics and Vaccines. By R. T. Hewlett, M.D., M.R.C.P., D.P.H. Lond., Professor of General Pathology and Bacteriology, King's College, London. Price 5*s.* net.

Fischer, Gustav, Jena.

Grundriss der Lungenchirurgie. Von C. Garrè, Professor der Chirurgie an der Universitat Königsberg, und H. Quincke, Professor der inneren Medizin an der Universität Kiel. Price M. 3.

Gullick, William Applegate, Government Printer, Sydney.

The Decline in the Birth-rate of New South Wales and other Phenomena of Child-birth. An Essay in Statistics. By T. A. Coghlan, Honorary Fellow of the Royal Statistical Society, Government Statistician of New South Wales. Price not stated.

Helsingfors Centraltryckeri, Helsingfors.

Finska Lakaresällskapets Handlingar. Redigerade af Professor Robert Tigerstedt. Band XLIV. Tilläggshafte, 1902. Band XLV., Juni, 1903.

Hirzel, S., Leipzig.

Handatlas der Anatomie des Menschen. Mit Unterstutzung von Wilhelm His, Professor der Anatomie an der Universitat Leipzig. Bearbeitet von Werner Spalteholz, A. O. Professor an der Universitat Leipzig und Custos der anatomischen Sammlungen. Dritter Band. (Eingeweide, Gehirn, Nerven, Sinnesorgane.) Price M. 13.

J. B. Lippincott Company, 5, Henrietta-street, Covent-garden, W.C.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D. Philadelphia, U.S.A. Volume II. Thirteenth Series. 1903. Price not stated.

Karger, S., Karlstrasse, 15, Berlin.

Tabes und Psychose. Von Dr. R. Cassirer, I. Assistent an der Nervenpoliklinik von Professor Oppenheim und Privat-dozent an der Universitat Berlin. Price M.4.

Jahrbuch fur Kinderheilkunde und Physische Erziehung. Unter Redaction von O. Heubner, A. Steffen. Th. Escherich. 58., der dritten Folge. Band 8. Heft 2; und Erganzungsheft. Ausgegeben am 1. August, 1903. Der Preis des Jahrgangs (zwei Bände) beträgt M. 36.

Kegan Paul, Trench, Trübner, and Co., Ltd., Dryden House, 43, Gerrard-street, W.

The Exact Science of Health based upon Life's Great Law. By Robert Walter, M.D. Vol. I.—Principles. Price 10*s.* 6*d.*

Longmans, Green and Co., 39, Paternoster-row, E.C.

Doubts about Darwinism. By a Semi-Darwinian. Price 3*s.* 6*d.*

New Sydenham Society (Agent: H. K. Lewis, 136, Gower-street, W.C.).

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology, compiled for The New Sydenham Society (A Continuation of the "Atlas of Pathology"). Fasciculus XVII. (Double Fasciculus.) Being VI. and VII. of New Series. Xanthelasma and Xanthoma; Changes in the Skin caused by Arsenic; Pemphigus and its Variants; Fractures and Dislocations; Miscellaneous. Plates A to O, and XCVIII. to CXVII. Price to non-members, one guinea.

Paton, J. and J., 143, Cannon-street, E.C.

Paton's List of Schools and Tutors. Sixth Annual Edition, 1903-1904. Price 1*s.* 6*d.*

Rebman, Limited, 129, Shaftesbury-avenue, W.C.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume II. June, 1903. Price 15*s.* The set of Four Volumes £2 12*s.* 6*d.*

Rudeval, F. R. de, 4, Rue Antoine Dubois, Paris.

Précis d'Electricité Médicale. Par E. Castex, Agrégé des Facultés de Médecine, Professeur de Physique médicale à l'Université de Rennes. Price 8 francs.

Hydrologie. Par Henri Causse, Chargé du Cours d'Hydrologie à la Faculté de Médecine et de Pharmacie de Lyon. Price 5 francs. (Précis de Médecine, No. 3.)

Scientific Press, Limited, 28 and 29, Southampton-street, W.C.

Practical Guide to Surgical Bandaging and Dressing. By William Johnson Smith, F.R.C.S., Principal Medical Officer, Seamen's Hospital, Greenwich. Price 2*s.*

The "Brewing Trade Review," 13, Little Trinity-lane, E.C.

Practical Management of Pure Yeast. By Alfred Jörgensen, Director of the Laboratory of Physiology and Technology of Fermentations, Copenhagen. Translated by R. Grey of the Kilburn Brewery, London, N.W. Price 5*s.* net.

Tinling, C., and Co., 53, Victoria-street, Liverpool.

St. Kilda and Its Birds. By J. Wigglesworth, M.D., F.R.C.P. Member of the British Ornithologists' Union. Price not stated.

University Press, Dublin.

Queen's College, Galway. Calendar for 1902–1903. To be obtained from the Registrar. Price 1*s*; post free, 1*s.* 5*d.*

Unwin, T. Fisher, Paternoster-square, E.C.

Alcoholism: A Study in Heredity. By G. Archdall Reid, M.B., C.M., F.R.S.E. Price not stated.

Wright, John, and Co., Bristol.

The New but True Life of the Carpenter: including a New Sketch of Mahomet. By Amos. Price 4*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Butters, G., M.B., C.M. Edin., has been re-appointed Medical Officer to the Kempston Urban District Council, Beds.

Ellison, E. H., M.D. Durh., has been appointed Certifying Surgeon under the Factory Act for the Syston District of the County of Leicester.

Emerson, H. B., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Act for the Pershore District of the County of Worcester.

Eminson, L., L.F.P.S.G., L.S.A., has been appointed Certifying Surgeon under the Factory Act for the Lavenham District of the County of Suffolk.

Fox, John Alfred, L.R.C.P. Lond., L.R.C.P., L.R.C.S. Edin., L.S.A. Lond., has been appointed Medical Officer for the No. 3 District by the Penzance Board of Guardians.

Hill, W. J., M.R.C.S., L.R.C.P. Lond., has been re-appointed Medical Officer of Clevedon, Somerset.

MacCormac, Henry, M.B., Ch.B. Edin., has been appointed a House Physician at the City of London Hospital for Diseases of the Chest.

Macpherson, Lawrie J., M.D. Glasg., has been elected Chairman of the Bench of Magistrates for the Weymouth Division of the County of Dorset.

Munro, Hugh Lennox, M.B., Ch.B. Edin., has been appointed House Surgeon, Royal Infirmary, Lancaster.

Osborne, A., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Act for the Ilfracombe District of the County of Devon.

Phillips, Llewellyn, M.D., B.C. Cantab., M.R.C.P. Lond., F.R.C.S. Eng., has been appointed Professor of Clinical Medicine in the *School of Medicine at Cairo,* and Second Physician to Kasr-el-Ainy Hospital.

Stainthorpe, W. W., J.P., M.D., C.M. Glasg., has been re-appointed Medical Officer of Saltburn.

Thompson, Joseph Henry, M.B., B.Ch., B.A.O. R.U.I., has been appointed Junior Assistant House Surgeon to the Stockport Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Birkenhead and Wirral Children's Hospital, Woodchurch-road, Birkenhead.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

Birmingham and Midland Eye Hospital.—Resident Surgical Officer. Salary £100 per annum, with board and residence.

[illegible] —Salary £90, with board,

[illegible] Second Assistant Medical [illegible] um, with board, lodging,

CANCER HOSPITAL (FREE), Fulham road, S.W.—House Surgeon for six months, renewable. Salary £70 per annum, with board and residence.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodgings, and washing.

CROYDON UNION INFIRMARY, Mayday road, Croydon.—Resident Assist- [illegible] iser. Salary £130 per [illegible] s, rations, and washing. [illegible] ssistant Medical Officer. [illegible] lodging, washing, and

[illegible] fficer for the Casualty [illegible] months, renewable. Salary at rate of £100 per

[illegible] ICK CHILDREN.—Resident House [illegible] r annum, with board and laundry.

[illegible] SPITAL FOR THE INSANE.—Junior [illegible] rried. Salary £150 a year, rising

[illegible] AND GLOUCESTERSHIRE EYE [illegible] Surgeon for six months. Re- [illegible] per annum, with board, residence, and

[illegible] rgeon. Salary £100 per annum,

[illegible] DISPENSARY, Balls Pond road —

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

HU[illegible] Assistant Medical [illegible] with board, apart-

ISL[illegible], Douglas, Isle of [illegible] salary £82 a year,

KEN[illegible] HOSPITAL.—House Physician, unmarried. Salary £90 a year, with board and lodging.

LEITH HOSPITAL.—House Physician, Assistant House Physician, [illegible] Surgeon, and Surgeon to Out-

[illegible] —House Surgeon. Salary £100

[illegible] Public Vaccinator. Salary £65 a year, with fees.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried. Salary at rate of £80 a year, with board and lodging.

PARISH OF BARRA.—Medical Officer and Public Vaccinator. Salary £119.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried. Salary at rate of £70 per annum, with residence, board, and washing.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House Surgeon. Salary £120 per annum, with board, lodging, and washing. Also Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

WEST LONDON HOSPITAL, Hammersmith road, W.—House Physician. Also House Surgeon. Each for six months, with board and lodging.

WOOLWICH UNION, West Woolwich Medical District.—Medical Officer. Salary £50 per annum, with fees.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory Act at Dunbar, in the county of Haddington.

Births, Marriages, and Deaths.

BIRTHS.

ALLIOTT.—On August 7th, at Wethersfield Hall, Braintree, the wife of Richard Alliott, B.A. Oxon., M.R.C.S., L.R.C.P., of a son.

GAMGEE.—On August 12th, at 23, Rotton Park road, Edgbaston, Birmingham, the wife of Leonard Gamgee, F.R.C.S., of a son.

MURRAY.—On August 16th, at Apsley, Stockport, the wife of Robert A. Murray, M.D. Edin., of a daughter.

DEATHS.

[illegible] othian, George [illegible] His Majesty's

[illegible] mouth, Samuel Nathaniel Elliot, M.R.C.S., aged 83 years.

GRIFFITH.—On August 15th, at Lismore, Weybridge, John Thomas Griffith, M.D., F.R.C.S., in his 81st year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL ETIQUETTE.

THE following letter under this title appeared in the columns of our contemporary the *Daily Mail* of August 18th:—

To the Editor of the "Daily Mail."

SIR,—I am a simple-minded citizen of the United States seeking for information.

On our side of the water we hear often of an awe inspiring, high-toned article called "medical etiquette" which casts a halo upon all British practitioners, rendering them perfectly immaculate and incapable of indulging in those unprofessional crimes which are said to be frequently committed by our doctors in the States. My trouble, sir, is that same "too solid flesh," which Mr. Hamlet so vainly tried to melt, and last fall a friend loaned me a book written by a doctor inviting all sufferers from my complaint to come unto him and be cured right away. It was an interesting work, and if the published name and address had not proved the writer to be a British practitioner I should have said he understood the art of advertising better than any man in the States.

Being in Europe this year I determined to call upon that doctor and get cured. I did so, and found him a most affable and agreeable gentleman.

After the usual preliminaries he drew up a list of rules for my guidance, the following of which would without fail lead to a cure. Among other things, I was at once to procure and consume certain wines and mineral waters, which could only be obtained from a given firm! I was to eat daily a kind of cracker procured from another given firm, and I was also to rasp my body daily with an ingenious implement procured from yet another given address!

I returned to my hotel, sir, and did some thinking. Then I went out and asked questions, which resulted in my finding, to my great astonishment, that my agreeable doctor was himself the wine and mineral water merchant, the cracker merchant, and the body rasp merchant! Now, sir, I feel convinced that if I eat those crackers, consume those wines and mineral waters, and rasp my body as directed, I will go home a well man. But I want to know, is this "medical etiquette"? OBESUS.

As the statements in this letter are a decided reflection upon a medical man we intended to ask "Obesus" if he would furnish us with the name of the practitioner in question, for we felt certain that he could not be upon the Medical Register if the story was true. But the *Daily Mail* of August 20th contained a letter signed "Registered Medical Practitioner" saying "the writer evidently has a tilt at me. The letter contains a modicum of truth." The writer then goes on to explain with great frankness that "the firms I recommend have taken much trouble for me, and it would not b fair if I did not return it, even if I help myself at the same time, as others do and must." We think that this view of the situation is not one that will be endorsed by the medical profession. "Registered Medical Practitioner" will find it difficult to prove that the patients can only get pure or good articles at the shops which he recommends—this being the reason that he alleges for his preferences—while he does not seem to perceive that suspicious people are certain to hold that his recommendations are not due to the excellence of the wares sold or manufactured by the firms in question, but to the fact that his relations with these firms are particularly friendly.

THE PATENTING OF SURGICAL INSTRUMENTS.

To the Editors of THE LANCET.

SIRS,—Like your correspondent "Patentee," I entirely fail to appreciate the distinction you attempt to draw between the patenting of a surgical appliance and copyrighting a book on surgery, the royalties on which you admit to be analogous to those which a patentee may possibly receive from an instrument. Both are, so far as they go, clearly a monopoly, else why does the author (or the publisher for him) seek to protect his copyright? If the appliance should be "a valuable adjunct to treatment" there could be no possible "hampering" of anyone in procuring or using it, as a patentee can now be compelled to give licences for selling and using his invention on reasonable terms. Lord Kelvin, to quote one eminent patentee only, designed and patented a water tap, besides various other ingenious inventions. Why is he more entitled to benefit by so doing than I am if I design and bring out at considerable cost to myself, as every inventor has to incur for even the simplest device, a new tooth extractor? As to the patenting of a combination of drugs, it is, of course, done every day by the German pharmaceutical chemists who flood the British market with their products. Surely, when you talk of the medical profession not tolerating the "secret or proprietary

Communications, Letters, &c., have been received from—

A.—Anderson's College Medical School, Glasgow, Secretary of; *Abolitionist*; Messrs. Armour and Company, Lond.; Æther, Lond.

B.—Mr. Harold Burrows, Lond.; Messrs. Burroughs, Wellcome, and Co., Lond.; Mr. W. H. Brown, Bournemouth; Mr. J. Boot, Nottingham; Barnwood House, Gloucester, Medical Superintendent of; Bury Infirmary, Secretary of; Mr. C. L. Bedford, Lond.; Messrs. C. Barker and Sons, Lond.

C.—Cornwall County Council, Truro, Chairman of; Mr. Walter Cooper, Barnstaple; Dr. J. Spottiswoode Cameron, Leeds; Dr. Vincent Cordaro, Messina; City of London Hospital for Diseases of the Chest, Lond., Secretary of; Cortland Wagon Co., Lond.; Messrs. Cassell and Co., Lond.

D.—Mr. A. Davis, Lond.; Mr. T. Dixon, Lond.; Mr. F. Davidson, Lond.; Dumfries and Galloway Royal Infirmary, Secretary of; Dowsing Radiant Heat Co., Lond.; Messrs. G. L. Daube and Co., Frankfurt; Mr. H. G. Jukes De Styrap, Shrewsbury.

E.—Messrs. Evans, Sons, Lescher and Webb, Lond.

F.—Dr. Alexander Forsyth, Lond.; Dr. W. P. Fooks, Isleworth; Messrs. Farebrother, Ellis, and Co., Lond.; Messrs. Fairchild Bros. and Foster, Lond.

G.—Mr. G. B. Gill, Lond.; Messrs. Glogart and Co., Chicago, U.S.A.; Gloucester General Infirmary, Secretary of; Gowers, Ltd., Maldon; G. H. M.; Guy's Hospital Medical School, Dean of.

H.—Dr. F. J. S. Heaney, Blackpool; Mr. B. W. Hird, Norwich; Dr. D. Hethcote, Barnard Castle; Dr. L. K. Herschel, Lond.; Messrs. C. J. Hewlett and Son, Lond.; Mrs. Gertrude Hoddinott, Evesham; Hartlepools Hospital, Hartlepool, Secretary of.

I.—Immigration Reform Association, Lond., Secretary of; Inventor.

J.—Walter Judd, Ltd., Lond.; J. H. M.

K.—Dr. R. Kelsall, Ashton under-Lyne; Dr. Charles F. Knight, Edinburgh.

L.—Mr. A. W. Lemarchand, Barnstaple; Leith Hospital, Secretary of; Dr. Charles G. S. Leeds, Cheltenham; Lady Superintendent, Hove.

M.—Dr. Allan Macfadyen, Lond.; Messrs. Manlove, Alliott and Co., Nottingham; Maltova, Ltd., Leeds; Mr. John D. Malcolm, Lond.; Mr. W. Boxer Mayne, Swindon; Marconi's Wireless Telegraph Co., Lond., Secretary of; Messrs. Maple and Co., Brighton; *Midland Counties Herald*, Birmingham; Manchester Children's Hospital, Secretary of; Dr. W. L. Muir, Glasgow; Motor Mart, Ltd., Lond.; Dr. W. Miller, Lond.; Mater.

N.—Noble's Hospital, Douglas, Isle of Man, Secretary of; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.; National Canine Defence League, Chairman of.

O.—Dr. George Oliver, Harrogate; Dr. James Oliver, Lond.; Mr. F. A. Osborn, Dover.

P.—Mr. D'Arcy Power, *Lond.*; Mr. Greenwood Pim, Strathpeffer; Mr. Vaughan Pendred, Buckingham; Puzzled; Mr. S. J. Pritchett, Rochester; Mr. Young J. Pentland, Edinburgh; Messrs. Peacock and Hadley, Lond.; Privy Council, Clerk of.

R.—Mr. H. N. Robson, Stroud; Mr. R. J. Reuter, Lond.; Messrs. Reinheimer and Co., Surbiton; Royal Hospital for Sick Children, Glasgow; R. D. J.; Royal (Dick) Veterinary College, Edinburgh, Principal of.

S.—Dr. Frank Shufflebotham, Newcastle-under-Lyme; Mr. A. Stenhouse, Glasgow; Dr. G. E. Shuttleworth, Richmond; Mr. Simeon Snell, Sheffield; Mr. C. D. Shackleton, Moone; St. Mungo's College, Glasgow, Secretary of; Southport Infirmary, Secretary of; Stockport Infirmary, Secretary of; Dr. David Sivewright, Lond.; Scholastic, Clerical, and Medical Association, Lond.; Messrs. S. Smith and Son, Lond.; Messrs. Street and Co., Lond.

T.—Dr. Frank E. Tylecote, Macclesfield.

V.—Vinolia Co., Lond.

W.—Messrs. J. Wright and Co., Bristol; Dr. T. R. C. Whipham, Lond., Mr. A. Willbond, Lond.

Y.—Yorkshire College, Leeds, Secretary of.

Letters, each with enclosure, are also acknowledged from—

A.—Aymard Patent Milk Steriliser Co., Ipswich; A. H. A.; A. L.; A. H. F.; A. E. T.

B.—Belfast Union, Clerk of; Mr. C. Birchall, Liverpool; Mr. G. Brown, Hanley; Birmingham University, Secretary of; B. L.; Messrs. Baird Bros., *Glasgow*; Mr. H. T. Butlin, Lond.; Mr. F. M. Black, Broughty Ferry; B. S.

C.—Carlow District Asylum, Clerk of; Messrs. Callard and Co., Lond.; Sir W. J. Collins, Lond.; Cambridge Typewriting Agency, Lond.; Dr. F. J. Coutts, Leytonstone; Crooksbury Sanatorium, Secretary of; Condensed Peptonised Milk Co., *Lond.*; C., Worthing; Dr. C. Cochrane, Selly Oak; Mr. Colin Campbell, Southport; C. R. D.; C. D. K.

D.—Denver Chemical Co., Lond., Manager of; Dalrymple Home, Rickmansworth, Medical Superintendent of; D. L. T.; Devon County Asylum, Exminster, Clerk of; Mrs. *Dawson, Leeds*.

E.—Dr. S. E. Ellison, Londonderry; Messrs. Elliott and Co., Edinburgh; Mr. W. G. Evans, Newquay; E. J. P.

F.—Dr. G. B. Flux, Lond.; Mr. F. W. D. Fraser, Teddington; Mr. W. R. Fox, Melbourne; Mr. L. Farrell, Dublin; F. G. L.; Dr. L. Forster, Chathill; F. H.; F. H. M.

G.—Sir Wm. Gairdner, Edinburgh; Mr. G. R. Grote, Hampton; Mr. L. Gamgee, Birmingham; Dr. D. M. Gill, Haslingden; Mr. W. Greene Monkstown; Messrs. R. W. Greeff and Co., Lond.; G. A. B.; G. T. M.

H.—Dr. H. Hewer, Dartford; Mr. C. S. Harwood, Staines; Mr. F. Heubeck, Wednesbury; Messrs. Haswell Bros., Wrexham; H. C. P.; H. E. H.; H. H. W.; H. E. S.; H. S. M. L.; H., Westminster.

J.—Dr. R. Jones, Lond.; J. P. T.; J. W.

K.—Mr. M. J. King, Killucan; Mr. W. V. Kane, Nagpur, India; Mr. W. Kirwan, Oranmore; Messrs. Knight and Co., Lond.; Kensington Nursing Institution, Medical Superintendent of; Messrs. Knight and Co., Nottingham.

L.—Mr. S. G. *Longworth*, Melton; Liverpool Infirmary for Children, Secretary of; Liverpool Hospital for Consumption, Secretary of; Mr. R. S. Langford, Padstow; Mr. R. A. E. Lowry, Preston; Surgeon G. Ley, R.N., Plymouth; L. R. H.

M.—Mr. J. J. McAndrew, Ilfley; Messrs. Maple and Co., Lond. Messrs. Moore and Co., Lond Dr. W. H. Millar, Lond.; Mr J. J. MacGrath, Dunfanaghy Medicus, South Norwood; M. T Messrs. H. Muller and Co Lond.; Mr. B. N. Molineux, Richmond, Yorks; M. S. M. D., M. W.; M. J. H. M.; M. S. M.

N.—National Anti-Vaccination League, Lond., Secretary of; Mr. J. W. Norman, Ashburton, N. C.

P.—Poplar Union, Clerk of; Mr. B. J. Power, Vancouver, British Columbia; Peckham House Asylum, Secretary of; Mr. R. W. Pearson, Devizes; Portman Temperance Male and Female Nurses Association, Lond., Secretary of.

Q.—Mr. J. J. Quirke, Margate.

R.—Dr. S. T. Rowling, *Leeds*; Mrs. Russell Ross, Edinburgh.

S.—Springfield House, Bedford, Medical Superintendent of; Mr. A. C. Sweeting, *St. Neots*; Mr. Noble Smith, Lond.; Surgeon E. Sutton, R.N., Plymouth; Mr. B. A. Seal, Salisbury; Messrs. W. H. Smith and Son, Liverpool; Stretton House, Church Stretton, Medical Superintendent of; Mrs. Sansom, Bexhill; Smedley's Hydropathic Co., Matlock; Messrs. Squire and Sons, Lond.; Sunderland Infirmary, Clerk of; Messrs. Salamon and Co, Rainham; Sheffield Royal Infirmary, Secretary of: S. R. B. M.; S. E. O.; S. J. R.

T.—Mr. E. Tatham, Potter Hanworth; Mrs. Thomas, *Stockton Heath*; Dr. G. W. H. Tawse, Whitehaven; Messrs. Twiss and Browning, Lond.; Mr. J. B. Thomas, Mardy; Temperance Male and Female Nurses Co-operation, Lond., Secretary of; T. M. C.

V.—Surgeon A. H. W. Vizard, R.N., *Mediterranean* Station; Victoria Hospital, Burnley, Secretary of; Mr. J. T. Vulliamy, Rugby; Messrs. G. Van Abbott and Sons, Lond.

W.—Mr. B. Wheeler, Manchester; Mr. N. Webster, Guernsey; Mr. T. J. Wright, St. *Bestenberg*; Captain F. Forbes Winslow, R.A.M.C, *Gibraltar*; Willesden Urban District Council, Clerk of; Withington Urban District Council, Clerk of; Wiveliscombe Dispensary, Secretary of; West Herts Infirmary, *Hemel Hempstead*; Messrs. Willing and Co, Lond.; *Rev.* R. J. Williams, Liverpool; Mr. J. Walters, Bedlinog; Mrs. Wolf, Corfu, Greece; W. A. F.; *W. D.*

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

For the United Kingdom.	
One Year	£1 12 6
Six Months	0 16 3
Three Months	0 8 2

To the Colonies and Abroad.	
One Year	£1 14 8
Six Months	0 17 4
Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "The Lancet General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in The Lancet.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. Charles Good, The Lancet Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

The Lancet can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIÉR, 31, Rue Bapts, Asnières, Paris

A Clinical Lecture

ON

THE SURGERY OF THE URETER FOR IMPACTED CALCULUS AND SOME OTHER CAUSES OF OBSTRUCTION.

Delivered at the Medical Graduates' College and Polyclinic

BY P. J. FREYER, M.A., M.D., M.CH. R.U.I.,
SURGEON TO ST. PETER'S HOSPITAL, LONDON.

GENTLEMEN,—Operations on the ureter, even in these days of active surgical interference, are of comparatively rare occurrence. By a singular coincidence three cases illustrating various phases of ureteral surgery were recently operated on by me on the same day at St. Peter's Hospital. One of the patients is present here to-day and I propose taking advantage of the occasion to review briefly the present position of surgery of the ureter for obstruction of that canal, particularly with reference to stone impacted therein, illustrating its various aspects by examples from my own practice.

The symptoms of renal and vesical calculus are generally well defined and characteristic. Those of stone in the ureter are, as a rule, extremely obscure. Indeed, it is only when the stone is impacted in the lower end of the ureter that a definite diagnosis can be ventured on. A stone travelling down from the kidney to the bladder may be arrested in any part of the ureter where it meets with a contraction, curve, or valvular process of mucous membrane; but the situations in which it is most likely to get impacted are—(1) at a point two inches from the commencement of the ureter; (2) at the brim of the pelvis; and (3) at the vesical end of the canal. When we speak of renal calculus we include not only one imbedded in the substance of the kidney but also one lying in the pelvis or calices of that organ. And this being so I know of no symptoms by which we can, with anything approaching certainty, distinguish between a kidney stone lying in the pelvis and one impacted in the ureter at any position above an inch or two from its vesical orifice. The symptoms of a stone lying in any position along the greater part of the course of the ureter are, to all intents and purposes, the same as those of a stone lying in the renal pelvis and obstructing the ureter. It is true that a ureteral calculus blocking the passage will give rise to hydronephrosis on the affected side; but so may a pelvic stone; and if both ureters be blocked in this way calculous anuria will result. The x rays may assist us in forming a diagnosis, but this adjunct is even less satisfactory than in the case of renal calculus. It is also possible that a stone impacted in the ureter may give rise to pain or tenderness at the seat of impaction when deep pressure is made along its course, and this, combined with other symptoms, may lead us to suspect the nature of the disease. But the probabilities are so strongly against a definite diagnosis that the recognised rule of surgery in all such cases is to explore the kidney for stone in the first instance by the lumbar method; and if it be not found there to examine the ureter by a bougie or probe passed down through the pelvis; and if a stone be thus found to extend the lumbar incision parallel with Poupart's ligament sufficiently far to enable us to reach the stone and to extract it. When, however, the stone is impacted in the lower end of the ureter at or near its vesical orifice it generally admits of recognition, as we shall presently see.

I need scarcely tell you that when after repeated attacks of renal colic all the kidney symptoms cease and are replaced by those of stone in the bladder you will come to the conclusion that the stone has made its way down the ureter and that it is lying in the bladder. I could give you details of numerous cases from my own practice with a history of this kind in which I detected the stone in the bladder and removed it by litholapaxy. But when the usual symptoms cease and are followed by vesical symptoms, and no stone can be detected by the sound, you should suspect its impaction in the vesical end of the ureter, for a stone lodged in this
position ma … oms of vesical cal-
culus. Ho … e situated in this
position? … , the forefinger into
the rectum, the patient lying on his back, and with the other hand make deep pressure above the pubes, when you may feel the stone as a hard nodule lying in the ureter beyond the trigone of the bladder. In the female it may be similarly detected by introducing the finger into the vagina. Then, again, if the stone project from the ureteral orifice into the bladder it may possibly be felt by the sound; or in the female the urethra may be dilated, a finger introduced into the bladder, and the calculus detected in this manner. But in Leiter's electric cystoscope we possess the most important and reliable means of diagnosing a calculus lying in the lower end of the ureter or projecting from its orifice. By this instrument I have in recent years detected several calculi lying in this position which were not recognisable in any other way. The cases which I shall now detail to you will illustrate the difficulties or facilities
attaching to the diagnosis of st
as well as the methods of c
according to the position which
of that canal.

CASE 1. *Calculus impacted in the left ureter two inches below the pelvis of the kidney; successful uretero lithotomy.*—The patient, a male, aged 28 years, was admitted to St. Peter's Hospital on Sept. 9th, 1902, with symptoms of calculus in the left kidney of 14 months' duration. There had been several attacks of left renal colic, each lasting about a week, and accompanied usually by hæmaturia. The pain commenced in the loin and at times extended into the corresponding groin and also into the testicle. The pain was absent at one period for two months, but had lately recurred with increased severity. Left renal calculus being diagnosed, I explored the kidney on Sept. 17th by the usual oblique incision in the left loin. No stone being found in the kidney, even after withdrawing it on to the loin and introducing the finger through an incision in its convex border into the pelvis, the lumbar incision was extended downwards an inch or two and the ureter traced downwards when a stone was felt impacted therein two inches from the pelvis of the kidney. It was found impossible to push the stone up into the pelvis, so a longitudinal incision was made in the ureter over the stone, which was thus extracted. No sutures were introduced into the ureter but a drainage-tube was inserted as far as the ureteral wound. Urine drained by the wound for four days and then ceased. The wound was thoroughly healed by Oct. 16th, when the patient went home and has had no trouble since. The calculus was a rough oxalate one of the size of a date-stone.

CASE 2. *Calculus impacted in the right ureter four inches below the pelvis of the kidney; uretero lithotomy; cure.*—An artillery officer, aged 23 years, consulted me on July 19th, 1898, on the advice of Dr. Charles Blood, then of Woolwich. He had had renal colic with hæmaturia off and on for 19 months. A week previously the pain in the right loin, accompanied by vomiting and constant desire to micturate, was so prolonged and excruciating that he had to be kept under the influence of morphia for 72 hours. I found the right kidney greatly enlarged and tender, also acute pain on pressure on a spot midway between the umbilicus and the anterior superior spine of the ileum. The urine contained blood, albumin, and crystals of oxalate of lime. The case was diagnosed as one of stone in the pelvis of the kidney causing obstruction. On July 30th, Dr. M. A. MacDonnell, M.P., and Dr. H. T. Griffiths being present, I explored the right kidney by an oblique lumbar incision. The kidney was much enlarged, congested, and soft. It was withdrawn on to the loin and incised through the convex border, when a rush of urine took place through the wound. A finger was introduced through the wound and the pelvis and calices, which formed a large, irregular, smooth-walled cavity, were explored, but no stone was found. A bougie passed down the ureter was arrested four inches from the renal pelvis. Replacing the bougie by a long silver probe a stone was felt at this point. The incision in the loin was then prolonged downwards for four inches and the ureter traced down till
I felt the s
attempted
success.
the calculu
passed rea
sutures were inserted in the ureter, but a drainage-tube was placed in the lumbar wound as far as the ureteral wound. Urine flowed through the loin for nine days and then ceased. The patient made a rapid recovery and left the Surgical Home on Sept. 7th and has since enjoyed good health.

Remarks

ON

FOUR CASES OF EMPYEMA OF THE GALL-BLADDER.

Delivered before the Chelsea Clinical Society

BY LEONARD A. BIDWELL, F.R.C.S. ENG.,
SURGEON TO THE WEST LONDON HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—The occurrence of suppuration in the gall-bladder is, I think, sufficiently uncommon to make the record of four cases in which this condition existed interesting to the society. It is a peculiar fact, too, that these four cases occurred in my practice within a period of four months and that previously I had not seen a single case among about 25 cases of operation on the gall-bladder.

Empyema of the gall-bladder may be due to simple suppurative catarrh or it may be a part of a suppurative cholangitis, or again it may be caused by acute phlegmonous cholecystitis. The first three of my cases are examples of simple suppurative catarrh and the last is one of acute phlegmonous cholecystitis. This latter condition is a very rare one, only a few cases having been recorded; it is also a very serious one and in its behaviour resembles acute appendicitis with gangrene of the appendix. The symptoms to which it gives rise are usually the following: a high temperature of 103° F. or over, a rapid and feeble pulse, quick and shallow breathing, intense depression, an anxious expression, and persistent vomiting. Occasionally, as in my case, severe diarrhœa is also present. Locally the abdomen will be found to be distended and tympanitic; there will be acute tenderness in the region of the gall-bladder, extending perhaps to the right iliac region, and the abdominal walls will not move on respiration; in fact, the condition will be one of acute peritonitis. In some fortunate cases the pus may become localised precisely in the same way as it does in appendicitis; otherwise the prognosis is most grave, even when the operation is undertaken before any purulent collection has taken place within the peritoneal cavity.

Suppurative catarrh of the gall-bladder, which is usually due to gall-stones, but may be found without any gall-stones, being due to cicatricial contraction of the cystic duct, is very much less serious than the other variety and the constitutional symptoms at first are so slight that it is extremely difficult, if possible, to diagnose between a distended gall-bladder containg pus and one containing only mucus. The only point which will aid us in the early stages will be the acute tenderness over the tumour and the rigidity of the abdominal walls. Usually the temperature is slightly elevated, but is often normal. In some cases, however, there are rigors and a higher temperature. The pain is usually severe but even this is sometimes slight. If no operation is performed the gall-bladder may perforate after the formation of adhesions and an abscess may come to the surface between the layers of the abdominal wall from which, on being opened, gall-stones will be discharged. Perhaps the most common place for such an abscess to point is at the umbilicus and a considerable number of cases of umbilical fistula through which gall-stones are passed have been recorded. In other cases the gall-bladder may form adhesions between the colon and the small intestine and the gall-stones and pus may be discharged into the intestinal canal. In other cases again no inflammation is excited outside the gall-bladder, but the tumour remains and the patient becomes emaciated. The tumour in empyema usually follows the direction taken by simple distension of the gall bladder—that is to say, downwards and inwards in a line drawn from the junction of the ninth rib on the right side and its cartilage and crossing the linea alba a little below the umbilicus. In other cases, owing to peritoneal adhesions, the enlargement of the tumour may be confined to the lumbar and iliac regions. This was noticed in two of my cases.

The main point in diagnosing a distended gall-bladder is that it possesses a rounded edge below, but at its upper limit it cannot be defined from the liver, although a definite sulcus can usually be felt at this point. In most cases the tumour is very hard and owing to its tenseness no fluctuation can be obtained. From the bacteriological point of view empyema of the gall-bladder may be due to the presence of bacterium coli commune, the streptococcus, or the typhoid bacillus. It is not known how these micro-organisms find their way into the gall-bladder, as in health the bile-ducts are free from any micro-organisms. The following are the notes of my cases.

CASE 1.—The patient was a female, aged 61 years, whom I was asked to see by Dr. W. H. Walter of Brentford in March, 1901. She had had good health, with the exception of an attack of supposed hepatic colic eight years before, after which she passed what was called a gall-stone. It was of about the size of a nux vomica bean but looked more like a fæcal concretion. At the beginning of March she had a severe attack of pain in the right hypochondriac region, accompanied by vomiting, but not by jaundice; there was slight diarrhœa. During the previous week a tumour had been felt near the umbilicus which was scarcely at all painful to the touch. The abdomen moved well and the tumour, which was of about the size of a closed fist, moved with respiration; it extended downwards, below the level of the umbilicus and was not absolutely dull on percussion. There was no sign of any jaundice. The diagnosis made was distension of the gall-bladder by a stone probably in the cystic duct. On March 30th the abdomen was opened in the right semilunar line and the omentum was found to be adherent to the gall-bladder and so had to be divided between the ligatures. The gall-bladder itself was extremely thickened and on opening it about two ounces of pus escaped. It was flushed out and two small stones were found loose in the gall-bladder, while a third was impacted in the cystic duct. This was removed and the gall-bladder was drained. The patient made an uneventful recovery.

CASE 2.—The patient was a man, aged 61 years, whom I was asked to see by Mr. J. Esmonde of Walthamstow on March 16th, 1901. He had good health till about six years before, when he had several attacks of pain in the region of the liver, one of these attacks being followed by jaundice. Since then he had frequent attacks of pain but no jaundice. About three weeks before I saw him he had more severe pain in the right hypochondriac region, accompanied by vomiting and tympanites and a lump was then discovered for the first time. The vomiting ceased and the abdominal distension subsided. The temperature had not been above 100° F. and was then 99°. On examination the abdomen moved well on respiration; there was a tumour of the size of a closed fist continuous with the liver and extending to the level of the umbilicus; it moved with respiration and was only slightly tender to the touch. The diagnosis in this case was also distension of the gall-bladder by blocking of the cystic duct. An operation was performed on March 18th, an incision being made in the outer part of the right rectus muscle. On opening the peritoneum dense adhesions were found, the liver being connected to the abdominal wall and its free edge fixed in a mass of cicatricial tissue. Neither the gall-bladder nor the pylorus could be seen or felt, but after separating dense adhesions the transverse colon came into view. It was therefore decided to carry the incision through the cicatrised edge of the liver and after dividing some cartilaginous tissue the gall-bladder was opened, about five ounces of thick muco-pus being evacuated, but no gall-stone was found. It was impossible to explore the bile ducts owing to the adhesions. The cavity of the gall bladder was irrigated, swabbed out, and drained in the usual way. The patient made a perfect recovery, the wound being healed in three weeks. He seemed in good health for a time but I was disappointed to hear that he had another attack of hepatic colic in May. This was not, however, surprising, as owing to the dense adhesion it was not found advisable to search for a stone impacted in the common duct, hoping that the drainage of the empyema of his gall-bladder would give relief. This attack subsided under medical treatment and he is, I believe, now quite well.

CASE 3.—The patient was a married woman, aged 28 years, whom I saw on June 13th, 1901, at the Blackheath Cottage Hospital, with Mr. Finch White. She gave the following history. She had previously enjoyed good health, but on June 11th she had severe pain in the abdomen which was most marked in the right iliac region. There was especial tenderness at McBurney's point and the abdomen was slightly distended. The tongue was furred and brown; there was nausea but no vomiting. The temperature was 99° F. and the pulse was 100. There was *no sign of* jaundice. On the 12th the abdomen was distended and very tender in the right iliac region and a definite swelling could be felt in this region. There were dulness and tenderness over the swelling; the temperature was 100°. On the 13th the patient was not so well; there were more pain and tenderness, the patient's expression was anxious, and the pyriform swelling was much larger. The diagnosis was that of an abscess in connexion with the appendix. When I saw her she was evidently suffering from peritonitis; I noticed that the swelling in the iliac fossa had a rounded edge at its lower part and that its upper part became merged with the liver dulness. There was also a slight icteric tinge in the conjunctivæ, and although there was no history of any previous attack of jaundice or of gall-stone colic I came to the conclusion that the case was one of distended gall bladder, probably due to the presence of pus. I operated on the same evening, making an incision in the right linea semilunaris, and found a distended gall-bladder with greatly thickened walls and with some recent adhesions between the gall-bladder and anterior abdominal wall. The gall-bladder was opened and about four ounces of pus were evacuated, together with 32 stones which were situated in the gall-bladder and in the cystic duct. A drainage-tube was sewn into the gall-bladder. There was a free discharge of bile, but the wound did not require dressing until the sixth day. The tube was shortened on the eighth day and removed three days later. The sinus quickly healed up, though during the first few months after the operation she had an occasional discharge of bile from it. The patient is now quite well.

CASE 4.—The patient was a woman, aged 63 years, whom I was asked to see by Dr. A. R. G. Pocock of Acton on July 11th, 1901. She had previously enjoyed good health with the exception of several so-called bilious attacks. Some of these were severe and caused her to keep in bed during some weeks, the last one being one year previously; on one occasion she was jaundiced. The present illness commenced on July 6th with severe pain at the umbilicus. Since that date the pain had increased and was felt all over the abdomen. The abdomen was distended and the patient had troublesome diarrhœa. A tumour which was acutely tender was noticed in the right ilio lumbar region two days previously. The temperature was 103° F. and the pulse was 130 and weak. I was asked to see the case. On examination the abdomen was distended and did not move on respiration. There was a tumour of the size of a large pear connected with the liver above and extending to the iliac fossa below; a rounded edge could be felt at the bottom of the tumour. The diagnosis in this case was an empyema of the gall-bladder probably dependent on gall-stones and an immediate operation was recommended. This was done on the following day, an incision being made over the tumour. The peritoneum was found to be adherent to the gall-bladder and the coils of small intestine were covered with yellow lymph. The gall bladder itself was very thick, its wall in one place being very acutely inflamed and almost gangrenous. It was opened and four ounces of thick muco pus escaped. At the bottom of the gall bladder two yellow stones were found, one of which had been impacted in the cystic duct. The gall-bladder was stitched to the peritoneum and drained. The patient stood the operation well, but three hours later diarrhœa commenced and continued about every hour during the night. The patient became collapsed and in spite of injections of strychnine and of saline infusion she died within 24 hours.

The first three cases bear out what I have stated with regard to simple suppurative catarrh of the gall-bladder at the commencement of this paper. In the first case three gall-stones were found and these were all little yellow stones which evidently were of old standing; one of them was tightly impacted in the cystic duct. In Case 2 I believe there was also an impacted stone in the cystic duct, but the density of the adhesions and the age of the patient (over 60 years) made it seem unadvisable to make a prolonged search for the stone. The subsequent history of the case has proved the wisdom of my action, since the stone evidently passed from the cystic into the common duct and two months later the stone probably escaped through the common duct into the duodenum, since he had a definite attack of hepatic colic at that time. In Case 3 the gall stones, which were 32 in number, were of normal colour and had evidently not existed for a long time.

From the point of view of diagnosis jaundice need never be looked for as a symptom; in fact, its presence would be *rather against a diagnosis of a simple empyema of the gall-*bladder, since this condition only exists as a definite tumour when the cystic duct is blocked, for should suppuration occur when the cystic duct is patent the pus would spread up the hepatic ducts and the condition known as suppurative cholangitis would be produced, giving rise to an enlargement of the whole liver, accompanied by tenderness and no particular enlargement of the gall-bladder. The constitutional symptoms also are more severe and the condition is one of considerable danger, the only hope lying in immediate cholecystotomy and drainage of the gall-bladder.

Whatever difference of opinion may exist as to the propriety of operations on gall-stones where few symptoms are present there can be no two opinions about the urgent necessity of operating when there is a collection of pus in the gall bladder, but, as I have stated, it is very difficult, if not impossible, to diagnose between a gall bladder containing muco-pus and one containing pus; therefore I consider that the existence of a distended gall-bladder which is tender to the touch, and especially if there are any signs of local peritonitis, is an indication for immediate operation, and this, too, in spite of the fact that though the tumour may disappear through the collection of pus becoming inspissated, since the patient will not regain his health, while the method of cure by ulceration into the intestine is naturally of considerable danger. In comparison we must remember that the operation of cholecystotomy is one of the most successful of abdominal operations and that the risk is extremely slight. Although one of these four patients died her case, as I have already pointed out, was quite distinct and her death was due to the peritonitis present before the operation.

In connexion *with these cases it is interesting to note that* in several of my cases other than those of empyema jaundice had either been absent or there had been only an indefinite history of it, the main cause of seeking relief having been persistent pain in the region of the liver or symptoms of stomach trouble caused by adhesions between the gall-bladder and the pylorus.

Finally, I should like to refer to three cases which illustrate the extreme difficulty of diagnosing between a tumour connected with the pyloric end of the stomach and a distended gall bladder.

CASE 5.—The patient was a woman, aged 54 years, who was admitted into the Blackheath Cottage Hospital on Jan. 23rd, 1900, on account of an abdominal tumour and vomiting after food. She had a considerable amount of pain, mostly after food, but had never had an attack of jaundice *or gall stone colic. The stomach was dilated and* extended to about two fingers' breadth below the umbilicus; "splashing" could be detected. A tumour of about the size of a turkey's egg could be felt about the level of the umbilicus; this apparently was continuous with the dilated stomach and was freely moveable. The patient was considerably emaciated. I gave a diagnosis of malignant disease of the pylorus and recommended an exploratory operation with a view to perform either pylorectomy or gastro enterostomy. The patient agreed and the abdomen was opened in the middle line above the umbilicus; the hard swelling was found to be a greatly distended gall bladder to which the pylorus was adherent, producing a constriction. These adhesions were divided and the gall-bladder, which was felt to contain many stones, was stitched in the wound and opened after the peritoneal cavity had been shut off. A quantity of mucus was evacuated together with one large stone of the size of a walnut and 353 small stones. The patient is now in perfect health.

CASE 6.—This case was that of a man, aged 48 years, whom I was asked to see at the same hospital suffering from a moveable tumour in the region of the gall-bladder, accompanied by persistent pain which had existed for a little over two months, but the tumour had only been discovered about 14 days before and was supposed to have diminished in size after manipulation. The patient had never vomited, there was no dilatation of the stomach, and the pain was not increased after food. The tumour moved freely from side to side but not in a vertical direction. It descended, however, with inspiration. It was not quite dull on percussion and apparently was continuous with the liver. The lower end of the tumour was distinctly rounded and reached the level of the umbilicus, the whole tumour being situated to the right of the middle line. The entire absence of any stomach symptoms, together with the position of the tumour, seemed to make the diagnosis fairly clear—viz , that of distension of the gall-bladder. The abdomen was opened on Dec. 13th, 1901, and the tumour was found to be a carcinoma completely surrounding the pyloric end of the stomach, the gall-bladder being undistended and healthy. Although the tumour was moveable it was not removed as the patient had not given his consent to so extensive an operation.

Case 7.—This case, in which the diagnosis was equally difficult, was that of a woman, aged 63 years, whom I was asked to see by Dr. W. H. Walter of Brentford, who gave me the following history. She had enjoyed good health until seven years previously, when she had an attack of pain in the right hypochondrium accompanied by vomiting but not followed by jaundice. This attack lasted for about three months, after which she completely recovered and remained in good health until about three weeks before I saw her, when she began again to notice pain in the right hypochondrium. This was of a severe griping nature and necessitated hypodermic injections of morphia. She vomited large quantities but never brought up any blood and she had lost flesh. On examination there was marked tenderness in the right hypochondriac region; the liver was not enlarged but there was a tumour apparently continuous with the liver extending to the level of the umbilicus, which was not absolutely dull on percussion, which had a rounded edge below, and which was situated entirely to the right of the middle line and descended with inspiration. The lower edge of the stomach did not extend as low as the umbilicus but there was marked "splashing." There was no sign of jaundice, the tongue was furred, but the motions were of a normal colour. In this case the diagnosis of distended gall-bladder, produced by gall-stones, and probably causing some constriction of the pylorus from adhesions, was made. The abdomen was accordingly opened over the right linea semilunaris and the tumour was found to be adherent to the abdominal wall. As it was considered to be an adherent gall-bladder an incision was carried through it, when a smooth-lined cavity was discovered. This, however, contained no gall-stones but some of the contents of the stomach escaped. It was then found that the tumour consisted of a malignant growth involving the gall-bladder, the pylorus, and the transverse colon. The incision into the growth was then united with sutures and a gastro-jejunostomy was performed through an incision in the middle line.

These three cases (Nos. 5, 6, and 7) will, I think, make it clear that a positive diagnosis should never be given in cases of a tumour situated in the right hypochondrium and they also illustrate the point on which I have laid stress on other occasions, that an exploratory operation should be advised in any abdominal tumour.

THE SURGERY OF GASTRIC ULCER.[1]

By A. B. MITCHELL, M.B. R.U.I., F.R.C.S. Irel.,
SURGEON TO THE ROYAL VICTORIA HOSPITAL, BELFAST.

Ulcer of the stomach is so common and its complications are so serious that almost every member of this society must have met with cases which may have greatly taxed his ingenuity and exhausted his therapeutical resources. I therefore think it may prove a subject of interest to all if I venture to draw attention to the vast strides made in the surgery of this affection during recent years. In doing so it is my intention to avoid any detailed references to the very extensive literature of this subject, which would probably prove more wearisome than instructive. I shall limit my remarks to such cases as have come under my own notice and submit for your consideration a brief record of my own operative experience. With the surgery of perforating ulcer it is unnecessary to occupy your time and I will simply place on record my work in connexion with this complication.

I have operated for perforation 12 times with eight successes. Nine operations were undertaken during the acute stage; of these the first three were done before the necessity for early interference had come to be generally recognised and before I myself had thoroughly mastered the finer points of the operation which contribute so much to success. These cases were practically hopeless from the first and all three patients died. Of the remaining seven cases six recovered and, I believe, are still alive. The fatal case was moribund at the time of arrival in hospital; at first we decided not to operate, but on reflection and consultation we altered our minds and concluded that as she had been sent into hospital for operation and as she was absolutely hopeless without interference it was our duty to give her the only chance of life still left. The abdomen was opened under cocaine; the ulcer was found immediately under the incision and sutured without difficulty; the operation involved little or no increase of existing shock but the patient died about two hours later. Two cases having survived the immediate risk of general peritonitis were operated on in the second week for the relief of perigastric abscess and both of the patients recovered. If, therefore, we omit the first three cases which scarcely offer a fair criterion of operative mortality my personal experience would show a series of nine consecutive cases with eight recoveries.

Physicians and surgeons are now happily agreed as to the duty of the surgeon when perforation has occurred. By common consent he is called upon to operate at the earliest possible moment. When we come, however, to consider the question of operative interference independent of perforation we are on more debateable ground and it is especially to this aspect of the subject that I wish to draw your attention. I have operated on 18 patients for the relief of symptoms which careful clinical investigation attributed to ulceration. In all instances the symptoms had continued with varying periods of comparative relaxation for several years. I shall now very briefly indicate the more prominent symptoms in each case, the condition actually found on opening the abdomen, and the nature of the operation

In order that this hurried record might prove more interesting and intelligible I have prepared a series of slides which, while crude and diagrammatic, are at least a faithful indication of the diseased condition. Considering the comparatively small number of operations it is somewhat surprising that I should have met with no less than six examples of hour-glass contraction. I shall therefore deal with these six cases first.

Case 1. *Hour-glass stomach; gastro-gastrostomy; cure.*—The patient was a single woman, aged 29 years, who had suffered from symptoms of gastric ulcer for 14 years. She had had several attacks of hæmatemesis. In spite of treatment she steadily got worse, the pain became almost continuous, vomiting occurred promptly after all kinds of food, she lost weight steadily, and finally was reduced to the condition of a chronic invalid. In November, 1900, she put herself under the care of Dr. W. Calwell and Dr. A. Fullerton who recommended an exploratory incision. She willingly consented and was removed to a private hospital No attempt was made to pass a stomach-tube as she had had a sharp attack of hæmatemesis on Nov. 1st, four weeks before operation. On the 27th, assisted by Dr. Fullerton and in the presence of Dr. Calwell, I opened the abdomen. Four long thin bands, evidently the result of old adhesions, stretched from the anterior abdominal wall to the upper border of the stomach; when these had been divided the stomach was without difficulty drawn into the wound and an hour-glass contraction was at once demonstrated. The constricted portion connecting the two pouches was formed of dense cicatricial tissue evidently the result of contraction following an old ulcer. We at once decided to form an anastomosis between the two pouches and Wöllfler's gastro-gastrostomy was carried out. An incision two and a half inches long was made into each pouch and the edges were united by a double row of continuous sutures. So tight was the constriction that my index finger introduced into the stomach through the incision in its wall could not be passed through the narrow opening. No attempt was made to interfere with the diseased area. The operation lasted for one hour. Recovery was rapid and complete. She was fed by the mouth from the third day. In two weeks she could eat ordinary diet without any inconvenience. She returned home three weeks after the operation. Two months later she called to see me and I scarcely knew her so marked was the improvement. She said she never remembered feeling so well. She had just eaten a dinner of roast beef, turnips, and potatoes without discomfort of any kind. She has since married and I am glad to say was still in excellent health two years and two months after the operation.

Case 2. *Hour-glass stomach; death from shock*—The patient; a single woman, aged 34 years, had suffered from symptoms of gastric ulcer for about 15 years. She had been several times in hospital and had had repeated attacks of hæmatemesis. Early in February, 1901, she had a violent attack of epigastric pain and for six weeks the pain had persisted without [illegible] tinuous, and the v[illegible] quantity. She was [illegible] with Dr. H. A. Logan of Ballyclare and as a last resource was sent into my ward for operation. She was admitted on March 30th, 1901. She was then very weak and wasted, having a subnormal temperature and a feeble, irregular, intermittent pulse. Vomiting was almost constant and she fainted in bed on the day following admission. On examination an intensely tender area was detected below the seventh and eighth costal cartilages on the left side and this area was distinctly dull. She was put on nutrient enemata and this treatment continued for five days in the hope that her general condition would improve, but the response was very slight and it was evident that unless something was done she must soon die. Accordingly, on April 4th, assisted by my colleague, Mr. T. S. Kirk, I opened the abdomen by an incision through the middle of the left rectus, directly over the tender spot. This incision opened into an indurated area due to inflammatory exudation. The central portion of this area broke down rapidly with the pressure of the finger and the stomach was suddenly opened. The ulcerative process extended into the liver and the stomach was separated from that organ with difficulty. It could then be drawn partially into the wound when it was found to be of the hour-glass form with active ulceration going on at the seat of constriction. The ulcerated area was enfolded as rapidly as possible and the pouches of the stomach joined together by Wölfler's method. The operation, which lasted one hour, was very badly borne and she died from shock two hours afterwards.

---

[1] A paper read before the Ulster Medical Society on Feb. 5th, 1903.

I think that it was a mistake in this case to make the incision directly over the tender area. It would have been better to cut down in the middle line so as to be free of the adhesions in the first instance when they might have been attacked from their border or possibly left untouched.

CASE 3. *Hour-glass stomach; gastro gastrostomy; cure.*—The patient, a single woman, aged 41 years, sister of a medical man, had suffered in her stomach for 26 years. In May, 1901, she went to Belfast and remained for six weeks under the care of Sir William Whitla in a nursing home. I saw her at that time and thought the case might possibly be one of hour-glass contraction, but she improved so much under rest and diet that operation was not considered to be justifiable. She returned to the country but very soon after she was as bad as ever. In March, 1902, she returned to Belfast and decided to have an operation performed. On March 18th, in the presence of Sir William Whitla, Dr. J. S. Darling, and the patient's brother, the abdomen was opened and a well-marked hour-glass stomach was without difficulty drawn into the wound. The pylorus was inspected and found to be healthy. Gastro-gastrostomy was performed. When the stomach was opened it was found that the opening between the two pouches would scarcely admit the tip of the little finger and in view of this fact her apparent recovery in the summer of 1901 is somewhat remarkable. She recovered rapidly after operation and left the home a month later feeling very well and able to take ordinary diet, including potatoes, with impunity. I am glad to say that she continues quite well at the present time (11 months after the operation).

CASE 4. *Hour-glass stomach; gastro-jejunostomy; cure.*—The patient, a man, aged 32 years, had suffered from indigestion for years. In 1899 Sir William Whitla had diagnosed dilatation and had recommended him to wash out his stomach, from which he had derived great relief; indeed, he was quite an expert in the use of the stomach-tube. He, however, steadily lost ground, had several fainting fits, and in the middle of April, 1902, whilst at Castlerock for the benefit of his health, had a severe attack of hæmatemesis. Dr. A. Heron of Rathfriland brought him to Belfast and I saw him at a private home with Sir William Whitla on April 24th. The stomach easily held five pints of fluid and reached almost to the pelvic brim. Free hydrochloric acid was present in excess. On the 25th, in the presence of Sir William Whitla and Dr. Heron of Rathfriland and Dr. Heron of Bristol, abdominal section was performed. An hour-glass stomach with a greatly dilated upper pouch and a small but dilated lower pouch was found. The pylorus could not be brought into the wound owing to dense adhesions. On account of the great size of the upper pouch and the presence of pyloric adhesions it was decided to make an artificial communication between the upper pouch and the jejunum. Posterior gastro-enterostomy was therefore performed. The operation lasted one hour. The patient rallied rapidly and made excellent progress for the first five days. On the sixth day he had a severe attack of vomiting; on the seventh day he vomited several times and his eyes became sunken and his pulse rapid and weak. We considered the question of reopening the abdomen but decided first to give lavage a trial. He therefore once again had resort to the stomach tube and he was encouraged to get out of bed and to sit in an armchair so as to secure dependency of the anastomotic opening. The result was most satisfactory—he was never again sick. Further progress was rapid and uneventful. He left the home on May 22nd, one month after operation, feeling quite strong and having gained no less than one stone in weight. I am glad to say that he continues to enjoy perfect health and at Christmas he sent me several snipe, victims of his vigour and marksmanship.

CASE 5. *Hour-glass stomach; gastro gastrostomy; cure.*—A single woman, aged 29 years, was sent to the Royal Victoria Hospital by Dr. D. P. Gaussen of Dunmurry for treatment by Dr. Calwell. She was admitted on Sept. 2nd, 1902, her history being that she had been a martyr to indigestion for over five years, characterised by severe pain about half an hour after food, occasional attacks of vomiting, and characteristic coffee-ground vomit on several occasions. Examination revealed a very tender and resistent area below the left costal margin. She was considerably wasted, her weight being only 7 stones 10 pounds. Drugs, rigid diet, rest in bed, and rectal feeding having failed to give the slightest permanent relief, Dr. Calwell suggested operation, to which she at once consented. On Sept 24th I opened the abdomen in the middle line, having learnt by experience that it is not good practice to cut down on an actually tender area which probably corresponds to an ulcer surrounded by excess of inflammatory exudation and adherent to the abdominal wall; such a condition existed in this case. Without much difficulty the adhesions were separated by the index finger and the stomach was drawn into the wound. It was at once seen to be hour-glass in character, the ulcer being situated a little below the middle, close to the lesser curvature. The ulceration was evidently active and after a hurried consultation we decided that the best procedure would be [illegible] then to infold the ulcerat[illegible] Recovery was uneventful. [illegible] food by the mouth with perfect comfort and she left hospital one month after operation feeling very well. She is now in excellent health and weighs 10 stones, having thus gained 2¼ stones as a result of the operation.

CASE 6. *Hour glass stomach; gastro-gastrostomy; cure.*—The patient, a single woman, aged 38 years, had suffered from "indigestion" for over 16 years. For the past three years she had been the victim of severe pain in the epigastrium coming on from half to one hour after food and radiating into the back and sometimes into the left breast. This pain was partially relieved by vomiting which for the last year occurred about once daily, generally after dinner. The pain was diminished by rest in bed but was not appreciably affected by posture. On one occasion the vomit had been brown in colour. She was admitted to the Royal Victoria Hospital under Professor J. A. Lindsay on Sept. 6th, 1902, when she was greatly wasted, her weight being only 5 stones 6 pounds. For one month she was submitted to the most rigid treatment, including prolonged rectal feeding, but without benefit. On Oct. 1st I was asked by Professor Lindsay to see her with a view to surgical interference. The stomach-tube was passed after a test-breakfast and the stomach contents were found to contain excess of free hydrochloric acid. The following note was taken at the time by Dr. Hugh M. McCrea, resident physician. "On inflation with air the stomach reaches to half-way between the umbilicus and the pubes and on pressure the air could be felt passing across the abdomen as if from one cavity to another; *four and a half pints* of fluid were then put into the stomach but *only two pints* came out again." A diagnosis of probable hour-glass stomach was made and operation was recommended. On Oct. 5th the abdomen was opened by the usual median incision and a well-marked hour-glass contraction was displayed. [illegible] concealed behind the ribs, [illegible] bound down by numerous [illegible] perigastritis. The lower pouch was much larger than the upper and some adhesions were found binding down the pylorus; these were easily separated. The centre of the constriction showed signs of recent inflammation and was adherent to the left lobe of the liver; these adhesions being extensive were left untouched. With considerable difficulty the upper pouch was drawn down sufficiently to permit of a gastro-gastrostomy being carried out. When the stomach was opened it was found impossible to pass the index finger through the narrow opening between the upper and lower pouches. Recovery was uninterrupted. The patient had water by the mouth in small quantities from the first, on the third day she had peptonised milk, and on the fifth day her diet consisted of eggs, jellies, soups, tea, and a little toast. Ten days after operation she could take fish and chicken without the slightest pain. She was discharged from hospital on Nov. 8th, five weeks after the operation, in excellent health, at which time she had gained seven pounds in weight. On Feb. 1st, 1903, she reported herself to be in good health, free from pain of any kind, and able to eat all sorts of food. Her weight was 7 stones 13 pounds, a gain of 2 stones 7 pounds.[2]

These six cases afford, I think, very satisfactory evidence of the value of surgery. The condition being a mechanical one it is obviously hopeless to expect relief from medicinal or dietetic treatment. Such cases are essentially surgical. Unfortunately, it is not possible to diagnose hour-glass contraction in more than a small percentage of cases until the abdomen has been opened, the most trustworthy sign being that observed in Case 6—i.e., the introduction of a quantity of fluid into the stomach, only a portion of which can be withdrawn through the tube. These cases illustrate two methods of dealing with hour-glass stomach: (1) gastro-gastrostomy, which in my experience has proved safe and efficient (the disadvantage of this operation is that it leaves a somewhat abnormal, double-barrelled stomach, but at the same time it secures rest for the diseased area which probably cicatrises rapidly); and (2) gastro-jejunostomy, which is only applicable to cases in which the lower pouch is very small and the pylorus is involved in adhesions. It is, of course, a much more serious operation than gastro-gastrostomy. It is essential in all cases of operation on the stomach that the pylorus should be seen and carefully examined. Two cases have been published in which the jejunum has been joined to the lower pouch, the upper having been hidden, as in Case 6, behind the ribs. The two other methods of treatment which obviously suggest themselves are: (1) gastro-plasty, which restores the stomach as nearly as possible to its normal shape but has the disadvantages that (*a*) it does not give subsequent rest to the diseased area and (*b*) that you cut into diseased tissue and insert sutures in cicatricial tissue; and (2) excision or partial gastrectomy, which, however, is a very severe operation, only justifiable in non-malignant disease in very exceptional circumstances.

The next series consists of six cases of dilated stomach due to pyloric obstruction, non-malignant in character. I regret to say that the mortality is very high, three out of the six patients having died. This, however, does not fairly represent the actual surgical risk, one patient having died from ether pneumonia, another was dying from toxic poisoning when operation was undertaken, while the third death must fairly be attributed to the operation itself.

CASE 7. *Dilated stomach; gastro jejunostomy; death from ether pneumonia.*—The patient was a man, aged 53 years, who had enjoyed good health till he was 50 years old. He then suddenly vomited two or three mouthfuls of dark blood. Since then he complained of constant weakness and occasional attacks of vomiting but no actual pain. For the past six months, however, he had severe persistent pain in his stomach which was greatly increased a short time after eating food. He vomited at irregular intervals and on a few occasions the vomit contained a small quantity of blood. He was admitted to hospital under the care of Dr. Calwell on March 23rd, 1901. On examination the stomach was found to be enormously dilated; when distended with gas it reached to half-way between the umbilicus and the pubes, and when a pint of water had been drunk the patient being in the erect position, dulness extended almost to the pelvic brim. Examination of the contents one hour after a test breakfast showed excess of free hyrdochloric acid. The case was regarded as one of pyloric stenosis due to cicatricial contraction. He consented to operation being performed. On April 18th ether was administered and the abdomen was opened. The stomach was found to be greatly dilated but freely moveable except at the pylorus, where it was tightly bound down by adhesions. Von Hacker's posterior gastro-jejunostomy was performed. The operation lasted 50 minutes, it was well borne, and there was little or no shock. Unfortunately, the patient developed ether pneumonia within 12 hours from which he died on the fourth day. At the post-mortem examination the gastro-jejunal junction was quite firm without the slightest trace of leakage or peritonitis. On opening the stomach, which was of about three or four times the normal size, a large ulcer of about the size of a crown-piece was found on the posterior surface close to the pylorus. It had perforated all the coats of the organ and its floor was formed by the pancreas. The pylorus freely admitted the index finger but this was after the viscus had been removed and adhesions had been separated. The death of this patient was very unfortunate. The post-mortem evidence, I think, fully justified the surgical procedure which had been undertaken. About three months before operating on this patient we had a very similar case. The patient stoutly refused operation. Early one morning while still in hospital perforation occurred and he died in about two hours. Post-mortem examination revealed an ulcer close to the pylorus with perforation on the anterior surface and cicatricial narrowing of the orifice.

CASE 8. *Dilated stomach; gastro jejunostomy; death.*—The patient, a man, aged 53 years, who was under the care of Dr. D. Johnston of Holywood, had suffered from his stomach for years, had had three or four attacks of gastric tetany and for two years had regularly washed out his stomach. On July 10th, 1901, I operated in his own house, assisted by Mr. R. J. Johnston. We found a greatly dilated stomach; the pylorus and duodenum were bound down by adhesions; the first portion of the duodenum was contracted to the size of a lead-pencil. A posterior gastro-jejunostomy was performed. The patient bore the operation very well and rapidly recovered and was able to eat solid food with comfort, and all went well till the fifteenth day when he suddenly became collapsed and vomited freely. The stomach was washed out, but as relief was not obtained I decided to reopen the abdomen. I found that the gastro-jejunal junction for a length of about three inches was imbedded in a mass of inflammatory lymph which had evidently contracted and occluded the canal; there was not the slightest trace of peritonitis beyond this area and the line of suture could not be detected. The line of junction was freed as rapidly as possible and an anastomosis by the aid of Murphy's button was effected between the proximal and distal ends of the jejunum, but the patient gradually sank and died two days later.

CASE 9. *Pyloric stenosis; gastro jejunostomy; recovery.*—The patient was a man, aged 50 years, who had suffered from his stomach for ten years. Under the care of Dr. S. Martin of Newry he had made use of the stomach-tube for six months and at first had greatly benefited, but he again began to fail in health. He consulted Sir William Whitla and gave a thorough trial to diet, drugs, and rest, but only got weaker. He only complained of pain and progressive weakness. He never vomited. Sir William Whitla who had diagnosed dilated stomach and pyloric obstruction asked me to see him with a view to operation. This was agreed to and he went to Belfast and entered a nursing home on June 9th, 1902. He was then weak and wasted, the stomach contents after a test-meal contained excess of free hydrochloric acid, and we regarded the condition as non-malignant. On the 11th operation was undertaken in the presence of Sir William Whitla and Dr. Martin. The stomach was found to be dilated; in the neighbourhood of the pylorus a distinct thickening almost like a tumour and of the size of a large walnut could be felt and seen; this mass and the pylorus were firmly bound down by adhesions. There were several enlarged glands, one of which was removed for pathological examination. We regarded the condition as inflammatory, notwithstanding his age, an opinion which was fully justified by Professor J. Lorrain Smith's report on the gland submitted to him and by subsequent events. Posterior gastro-jejunostomy was performed, special care being taken to make a free opening and to prevent kinking by extending the line of suture well beyond the new opening. The operation occupied one hour; the patient rallied rapidly and his progress to recovery was uneventful. He was fed by the mouth from the fourth day, had solid food on the eighth day, and could eat a chop with relish on the twelfth day.

---

[2] This patient and the patient in Case 5 were shown at the meeting.

He left the home for Portrush three and a half weeks after operation, having gained one stone in weight. He wrote me at Christmas saying that he was in perfect health and that he had not felt so well for many years

CASE 10. *Pyloric obstruction, anterior gastro jejunostomy, recovery* —The patient, a man, aged 58 years, had suffered from his stomach for some time. For the past six months he had more or less constant pain, he vomited enormous quantities of foul smelling acid material at least once daily His stomach held five pints without distress, there was no free hydrochloric acid He had a double aortic murmur and a very irritable temper and it was impossible to make any satisfactory use of the stomach tube A well-marked tumour could be felt in the pyloric region and this was freely moveable. He was sent into hospital by Sir William Whitla who had seen him in consultation The case was regarded as malignant On July 22nd, 1902 I opened the abdomen A fairly moveable tumour of the size of a Tangerine orange was found at the pyloric end of the stomach, the adhesions were limited, no enlarged glands could be felt, and there was no sign of any secondary deposit in the liver The stomach was enormously dilated and contained a large quantity of fluid. Anterior gastro-jejunostomy was the operation selected, as I feared that we would inevitably soil the peritoneum if we attempted Hacker's posterior method When the stomach was opened three pints of fluid were syphoned off before completing the gastro intestinal junction. When this had been done several stitches were inserted on each side for at least one inch beyond the new opening, so as to prevent, if possible, the regurgitation of bile, which is frequently such a troublesome complication of the anterior operation. Recovery was uninterrupted. He left hospital three weeks later able to eat ordinary food with perfect comfort Three months later he came to see us, the tumour could no longer be felt, and he had gained one and half stones in weight and felt in excellent health

CASE 11 *Dilated stomach, toxæmia, gastro jejunostomy, death from pneumonia* —The patient, a medical man, aged 56 years, had always had "a bad stomach" Five years previously he had a severe stomach attack with pain and vomiting He made a fair but incomplete recovery For the past two years he had suffered from attacks of vomiting coming on every second day but without pain. The vomited matter was enormous in quantity—from four to five pints—very acrid, and frequently very offensive Some time before calling on me he had seen Dr Calwell who advised operation When I saw him first, on July 14th, he was very weak and greatly wasted He came, he said, to arrange for operation but first intended to take a change of air with a view to gain some strength I urged immediate operation, failing in this I persuaded him to wash out his stomach during his holiday He did so and obtained so much relief that he went back to his practice He soon, however, again began to fail and vomited each evening in spite of lavage About the middle of September, 1902, he undertook some heavy work ; on the same evening he fainted and continued very ill till Sept. 29th when he finally made up his mind to go to Belfast for operation as he was evidently sinking On the way he had two or three fainting attacks On arrival I saw him with Mr. R Hall and Dr Calwell ; he was then very ill, evidently suffering from severe toxæmia. His face was pinched and sallow, his tongue was dry and cracked, and he complained of intense thirst He had contracted pupils and a rapid and very intermittent pulse He was drowsy and apathetic and had slight wandering delirium We decided that it was better to operate, as he was evidently sinking Accordingly on the 30th posterior gastro jejunostomy was performed He rallied well and his pulse and general condition steadily improved till the fourth day when the temperature began to rise and his breathing became hurried, the stethoscope revealed a patch of pneumonia at the root of the right lung, which steadily progressed and he died on the tenth day From the third day almost to the last he could take nourishment freely by the mouth The abdomen was soft and painless throughout The expectoration rapidly became purulent and contained numerous staphylococci, the pneumonia was evidently septic, and if not actually caused by the toxins absorbed from the stomach before operation they must have predisposed the patient to the attack

CASE 12 *Pyloric obstruction, gastro duodenostomy, complete relief* —The patient was a woman, aged 48 years, who had suffered from her stomach for three years At the outset of her illness she had an attack of hæmatemesis, and she then passed blood in the motions Since then she had complained of severe continuous pain in the epigastrium, which was aggravated by food, vomiting occurred after all kinds of food. She steadily lost weight and when admitted to the Ulster Hospital under the care of my colleague, Dr J. Tennant, on May 18th, 1902, she was greatly wasted, only weighing 4 stones 1 pound Examination showed the stomach to be slightly dilated The contents after a test breakfast contained no free hydrochloric acid, but butyric acid was present in small quantity. After six weeks' treatment without appreciable benefit Dr Tennant asked me to see her. Operation was suggested and promptly accepted Dr Tennant kindly asked me to assist him and I am further indebted to him for permission to include the case in this series, more especially as it affords the only instance of gastro duodenostomy in the list The abdomen was opened by Dr Tennant on July 11th We found some adhesions between the omentum and the first portion of the duodenum The pylorus and duodenum came freely into the wound, the pyloric ring was indurated, especially on its posterior aspect, where some distinct thickening could be felt We rapidly considered the relative advantage of pyloroplasty, which is the favourite operation for such a condition, and gastro-duodenostomy The latter operation was selected because (1) it did not involve cutting into diseased tissue and (2) because we had a long, freely moveable, first portion of duodenum to work with. Junction was effected by a double row of continuous suture The operation lasted one and a half hours Recovery was rapid and complete. The patient was discharged one month after operation, able to eat ordinary diet with comfort, having gained 1 stone 5 pounds. On Nov 26th, four and a half months after the operation, she was in excellent health and weighed 6 stones 10 pounds, a total gain of 2 stones 9 pounds

The remaining six cases cannot very well be classified They include one case of separation of adhesions and gastrotomy, one case of excision of an ulcer, one case of infolding of an ulcer and indurated area, one case of gastro jejunostomy for duodenal adhesions, and two cases of exploratory laparotomy in which though the patients had complained of stomach symptoms for years nothing could be found to account for these symptoms when the abdomen had been opened The patients in all six cases recovered

CASE 13 *Extensive adhesions; separation of the adhesions; recovery* —The patient, a woman, aged 22 years, had suffered for eight years from persistent gastric pain and vomiting, and had repeatedly been in hospital On May 2nd, 1901, at the request of Dr Calwell, I opened the abdomen Professor T Sinclair kindly assisted me and gave me the benefit of his advice Several adhesions were found on the anterior surface of the stomach, these were separated without difficulty The stomach was adherent posteriorly and could not be drawn freely into the wound, but the pylorus and duodenum could be easily seen and examined. Nothing abnormal could be detected in them Numerous large firm glands could be felt and seen between the folds of peritoneum leading from the stomach One of these of the size of a large nut was removed for purposes of examination Macroscopically it appeared to be tuberculous, unfortunately it got lost, and I was therefore unable to obtain a pathologist's report as to its microscopical character. Next the stomach was opened and an attempt made to examine the mucous surface, but this proved very unsatisfactory owing to the posterior adhesions The gastrotomy wound was closed by a double row of continuous suture and nothing further was done, though the glands had evidently been infected from a mucous surface, the peritoneum being quite healthy Recovery was uneventful. She got complete relief from the pain and vomiting and left the hospital with good digestive powers one month later I heard of her a year subsequently and was informed that she was then in good health I regret that I have been unable to trace her so as to submit an up to date report for your information I am unable to explain the relief in this case, except it depended on the division of the anterior adhesions which were weak and inclined to stretch In view of a more extended experience I should now do a gastro jejunostomy in a similar case

CASE 14 *Chronic ulcer, excision, recovery* —The patient, a woman, aged 24 years, under the care of Dr W J Wilson of Larne had suffered from her stomach for eight years. She complained of very severe pain after food and this was her only symptom She was seen by Sir William Whitla and on two occasions had tried prolonged rest in bed but relief was transient; as soon as she got up her enemy attacked her as wickedly as ever. She went to Belfast and entered a nursing home. On Feb. 1st, 1902, in the presence of Sir William Whitla, operation was undertaken. We found no trace of adhesions. The stomach was easily drawn into the wound and at first sight appeared to be quite healthy; closer examination, however, revealed an indurated area of about the size of a sixpence on the anterior surface near the lesser curvature, about two and a half inches from the pylorus. This was excised and its mucous aspect exhibited a clean cut ulcer of the size of a threepenny-piece. The wound was closed by a double row of continuous suture. The patient made a rapid recovery and left the home within the month able to eat ordinary food with comfort.

I am sorry to say that the improvement in this case was not fully maintained. The patient called on me recently to report herself (one year after operation) and she stated that she now suffered from flatulence and feeling of fulness after food but that she had no return of the old pain. She, however, looked well and was much stouter than she had been. Looking back on this case I think that it would probably have been better to have performed a gastro-jejunostomy.

CASE 15. *Old-standing ulcer; commencing hour-glass contraction; ulcer infolded; cure.*—The patient, a woman, aged 32 years, had suffered from indigestion for about 12 years, severe pain coming on one or two hours after food, followed by nausea and sometimes by vomiting. I saw her first in August, 1902, and recommended complete rest in bed and some alkaline powders. She gave this treatment a fair trial but without benefit. I therefore suggested operation and sent her to Dr. Calwell who after careful examination also advised operation. She went into a private hospital and on Oct. 20th, 1902 assisted by Dr. Calwell, I operated. We found a well-marked ulcer surrounded by a zone of induration, adherent to the anterior abdominal wall and to the left lobe of the liver. The adhesions were divided and the ulcer was then found to extend round the lesser curvature to the posterior surface. Old silvery adhesions connected the posterior surface to the pancreas; these having become elongated by stretching were easily divided when a commencing hour-glass contraction was seen. I decided to infold the entire ulcerated area without opening the stomach. This was done by a single row of continuous silk suture which extended about four-fifths round the circumference of the stomach. The patient made a rapid and complete recovery and is now in excellent health and able to eat the ordinary diet of her home without any inconvenience.

In May, 1901, in a paper read before the Royal Academy of Medicine in Ireland I ventured to suggest that simple infolding of the ulcer should prove efficient, but I had not then had an opportunity of testing the method and I confess that I did so in this instance with some little anxiety. The chief aim of the operator is to secure rest so as to give the ulcer an opportunity to heal. It is generally considered that gastro-jejunostomy is the best method of securing this much desired rest and hence the popularity of this operation with most surgeons, notwithstanding its somewhat high mortality and subsequent complications. If, however, we consider the effect of infolding a given area of stomach wall you will, I think, see that the result is to secure absolute rest by cutting that area off from all peristaltic movement, and it is probable that in a very short time the area thus infolded undergoes complete absorption. The result of this case encourages me to recommend this method with confidence in suitable cases as it certainly involves a minimum of risk, though so far as I know no other operator has deliberately carried out this procedure.

CASE 16.—*Duodenal adhesions; gastro-jejunostomy; recovery.*—The patient was a woman, aged 30 years, who was under the care of Dr. R. A. Shekleton of Newtownards. She had suffered from sickness and vomiting as a child; for the past 16 months she had been sleepy, thirst, and weakly and complained of a throbbing pain in her stomach. She was in the Royal Victoria Hospital in June, 1902, when her stomach was found to be slightly dilated and contained a trace of free hydrochloric acid. She had pain over the left ovary, for which she was seen by Professor J. W. Byers. Under Dr. Shekleton's care the stomach was regularly washed out and every therapeutical measure was employed, but she steadily failed and her weight, which had been 8 stones, fell to 5 stones 11 pounds. On Jan. 17th, 1903, she entered a nursing home in Belfast, under the care of Dr. Calwell. She complained of torture on walking or driving and of a constant feeling of distension and tenderness over the pyloric region. The stomach was slightly dilated; there were a trace of free hydrochloric acid and a trace of lactic acid. As she did not improve operation was suggested, though the symptoms were indefinite. She at once agreed. On the 28th I operated, assisted by Dr. Calwell. We found the stomach to be healthy, but recent adhesions were present, surrounding the first part of the duodenum, and numerous enlarged mesenteric glands were observed. Posterior gastro-jejunostomy was performed. There was little or no shock but almost immediately after she came from under the influence of the anæsthetic the abdomen became distended, so that within four hours the distress was urgent. Strychnine hypodermically and enemata failed to give relief and six hours after the operation we decided to give five grains of calomel by the mouth. This was followed in six hours by two drachms of salts and, as this also failed, two ounces of castor oil were given on the morning after operation and repeated enemata of turpentine and water were administered. The anastomosis stood the severe test well and finally 18 hours after operation flatus was passed per anum, followed during the night by a copious motion and the patient was out of danger. She is now (August 25th, 1903) in excellent health.

CASE 17. *Exploratory laparotomy; healthy stomach.*—The patient, a woman, aged 21 years, had a history of stomach trouble for years. She had been in hospital under the care of Dr. James Cuming in June, 1899, when she complained of pain coming on immediately after food, nausea, and vomiting. The case was regarded as one of gastric ulcer. She was discharged after six weeks of careful dietetic treatment, but the improvement was only slight. Shortly after returning home she was, she said, as bad as ever and then hæmatemesis developed. She again went to hospital under the care of Dr. Calwell on Feb. 14th, 1900. On admission her symptoms were as follows. She had pain, sometimes immediately, sometimes at varying intervals after food. She vomited frequently, but there was no hæmatemesis while in hospital. She complained of pain and nausea after all kinds of food. Peptonised milk only made her feel worse and she vomited immediately after taking it. She was put on nutrient enemata but without benefit. Dr. Calwell asked me to see her with a view to operation. She at once assented. Accordingly, on March 19th, assisted by Professor Sinclair, I operated. We found an apparently healthy stomach and duodenum. The abdomen was closed and she made a good recovery. She was fed by the mouth from the first and a week after operation she could eat fish, chicken, and chop with perfect comfort. Four months after operation she came to report progress and stated that she had derived great benefit from the treatment. In March, 1901, she came to me complaining of pain in the left kidney and frequent micturition. She suggested operation, but in view of my previous experience I declined to satisfy her surgical thirst. We regarded the case as a manifestation of hysteria

CASE 18. *Exploratory laparotomy; healthy organs.*—The patient, a man, aged 54 years, had complained for ten years of chronic constipation and continuous burning pain in the pyloric region, which pain was aggravated by food. He occasionally vomited after food. He had tried many physicians and had been in hospital for 11 days under the care of Dr. Calwell in 1901 who then regarded the case as one of chronic constipation and hypochondriasis. Since leaving hospital he had tried numerous remedies; he became more and more depressed, and finally Mr. R. Hall sent him into my ward for exploratory incision. Routine examination of the stomach gave no indication of distension; there was no free hydrochloric acid. Dr. Calwell saw him with me and we decided that, as all else had failed and as the patient himself wished for it, an exploratory operation would be justifiable. On Jan. 13th, 1903, I opened the abdomen. I examined the stomach, the gall-bladder, the pancreas, the kidneys, and the appendix but could find no evidence of disease. The wound was therefore closed. He had no ill-effects from the operation and on Feb. 4th, three weeks after operation, he said that he felt very comfortable, his old pain was gone, and he was much improved by the operation.

This series of 18 cases represents all the operations I have undertaken for non-malignant disease of the stomach. There were four deaths, but while I am in duty bound to record these I do not think that they are a correct indication of the risk of operation, three of these deaths having, as already explained, been altogether exceptional. If we omit these the mortality would be 1 death in 15 cases—i.e., between 6 and 7 per cent.—and this, I think, should be capable of still further reduction.

The very important question now arises, What are the indications for surgical treatment in gastric ulcer?

1. Fortunately there are some cases which offer no difficulty. All cases in which the cause of symptoms is mechanical are essentially surgical. By no possibility could medicinal or dietetic treatment be expected to cure either an hour-glass stomach or a case of pyloric stenosis. The former condition, however, is rarely diagnosed previously to operation. The latter is now comparatively easy to detect. For dilated stomach treatment by washing out is a very favourite one and gives great relief at first by removing the toxic products of feeble digestion and excess of acids, but at the best it is only palliative; and while it may be recommended in the first instance common-sense suggests that the sooner the actual cause of the dilatation is removed the better, as the risk of operation increases in direct proportion to the delay.

2. There is, however, as you all know, a very large proportion of cases in which no such definite indication exists. Here the question becomes one for the physician. I am quite satisfied that he is not justified in recommending operation till he has exhausted every other method of treatment, and I do not think that these cases should be submitted to early operation, the acuteness of the symptoms and response to treatment must decide this. Before any operation is undertaken the patient sho [illegible] prolonged rest in bed (not [illegible] dieting or rectal feeding. I [illegible] tion is clearly indicated. On the other hand, it is obviously wrong to allow sufferers to struggle along year after year in the position of chronic invalids, useless to themselves and a burden to their friends, without at least offering them the chance of relief by surgical means.

3. Hæmatemesis sometimes calls for surgical aid but the operative mortality is very high. Two cases have come under my notice. Some time ago I saw with Dr. M. O'Malley a young girl who had vomited a very large quantity of blood and was blanched and almost pulseless. She stated that about two years previously she had had a similar attack at her home in England but that she had made a good recovery. We sent her into hospital where she was under the care of Dr. Calwell. The hæmorrhage seemed to have ceased and she was apparently recovering when on the third day after admission she again vomited blood freely and died in about an hour. I showed her stomach at one of the meetings of this society. There was an ulcer of about the size of a split pea which had perforated a large artery. The second case was a man sent into hospital by Sir William Whitla. He was vomiting blood freely, but as his pulse was not unduly weak it was decided to give a trial to chloride of calcium and adrenalin. He too, however, suddenly got worse and when seen again was evidently moribund. Such cases are very difficult. Had we operated death would have been attributed to our interference, yet I now feel that I should have operated in both instances.

A great difficulty lies in the surgeon's way in all these cases. He can rarely say definitely what he is going to do till the abdomen is opened. The operation in this sense, at least, must be regarded as exploratory, but with increased accuracy of clinical diagnosis and the knowledge gained by operative work our opinion will gradually become more definite and precise.

Belfast.

A CASE OF AUTOMATIC WANDERING LASTING FIVE DAYS.

By W. S. COLMAN, M.D., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO ST. THOMAS'S HOSPITAL AND LECTURER ON FORENSIC MEDICINE IN THE MEDICAL SCHOOL.

THE patient was a telephone linesman, aged 37 years. He was a sparely built man, but appeared to be perfectly healthy. He was temperate and denied having suffered from any form of venereal disease. He had never suffered from epileptic fits. His father died from "softening of the brain"; the exact nature of the illness could not be ascertained but he was never sent to an asylum. His father's brother was an epileptic. Of his own brothers one died from "convulsions" as a baby and an elder brother was a confirmed epileptic. The patient has had two prolonged attacks of automatic wandering and many of only short duration. The first prolonged attack occurred in November, 1900. He left his home in Wood Green to go to work but did not arrive at his destination. He remembers having his breakfast and starting, but after that there is a blank in his recollections until late in the following afternoon (30 hours later) when he suddenly "woke up." He describes himself as having felt "half startled" as if awaking from a disturbed nap. He found that he was in Hampstead for no reason. On counting his money he found that he had spent 2*s*. and as he was not hungry he had probably been able to buy himself food. He did not feel particularly ill and was able to return to work the following morning. After this attack he had slight attacks at intervals of some weeks. They came on as he was walking in the street. He would suddenly find that he had "lost himself" and that he was in quite a different place from the one he last remembered. On getting his bearings he could easily work out how long the attack had lasted. He thinks that they could not usually have been of more than a few minutes' duration and that only on one occasion could the lapse of consciousness have lasted half an hour. None of these attacks occurred when he was on a ladder attending to telephone wires, but only when he was walking along the street.

The second prolonged attack, which lasted for five and a half days, occurred in January, 1903. He was then living in the neighbourhood of King's Cross. He left his house at 6.45 one Monday morning to go to work in Wardour-street. He recollects looking at the clock on the Euston Hotel as he passed at 6.50. After this he remembers nothing. He did not arrive at the office and was not seen by any of his friends. At 4 P.M. on the following Saturday he suddenly "woke up" and found himself to his alarm in a strange town. On asking a policeman he found that the town was Leighton Buzzard where he had never been before and with which he had no associations. He had a violent headache, the heels of his boots were worn down, and the soles of his feet were severely blistered. His clothes were muddy as if he had slept by the road-side. He was not particularly hungry and found that he had spent several shillings, presumably on food, and he still had enough money left to enable him to return by rail. From that time no recollection has come back to him of the way in which those five days were spent except that he has some hazy idea connected with "Watford," but he has no recollection of having visited it. It is probable that he did so as it lies directly in the route either by road or rail. I saw him a few days after the attack and can confirm his statement about the severe blistering of his feet. On examination I could find no evidence of any organic disease of the nervous system. I could elicit no history of vertigo or any definite form of *petit mal*, but he said that occasionally a "brownish mist" came before his eyes when he was walking about. He was in good health and anxious to resume his occupation. His employers, however, fearing that he might have some mishap while working on a ladder declined to take the responsibility, although as he was a good workman they kept him on in their employment at some safer but less highly paid work.

The not unnatural explanation of fellow workmen is that the victims have gone off on some frolic and have invented an ingenious story to account for their absence from work. This man, however, was a good steady worker, very little money was missing from his pockets and there is the history of numerous similar but more transient attacks. There is no doubt in this man a strong epileptic tendency, as shown in his family history, and the attacks were probably of the same nature as those seen after epileptic attacks, both major and minor. Of these I have recorded instances in previous papers.[1] This case, however, comes more into line with those which have been described by Charcot and others in which the automatism appears to replace the fit. I have fully described two such cases in the St. Thomas's Hospital Reports for 1898, which may be briefly recapitulated.

The first case was that of a serjeant-major in the Guards who left Chelsea for a walk on a Monday evening. Two and a half days later he suddenly "woke up" with a sensation of something giving way in his head on a road near Newtownstewart in the North of Ireland, a place of which he had scarcely even heard. He had arrived there the previous evening and put up at an inn and had told the host that he had walked from Londonderry. He had spent only the amount of money that would have been necessary for such a journey. On his return he was placed under arrest, but on medical evidence was invalided out of the army. I put him on bromide of potassium which he took regularly for some months, but then, unfortunately, left it off and 18 months after the first he had a second but shorter attack. He left his house in Battersea and "woke up" five hours later footsore and tired in Croydon where he had never been before. In his case there was no history of epileptic attacks, but he had occasional sudden attacks of mental depression which did not occur while he was taking bromide.

---

[1] THE LANCET, July 5th, 1890 (p. 14), and July 21st, 1894 (p. 123).

The second case was that of a policeman who left his house at 6 30 P.M. to look for some money which he was excited at having lost. He remembered passing the end of the street, but after that everything was a blank until 5 A.M. next morning when he found himself on an Australia bound steamer passing Gravesend and was only just in time to be sent ashore with the pilot. He had a severe occipital headache and was extremely hungry. He had only spent a shilling. He had an excellent character for sobriety. He had never had an epileptic attack, but had had two alarming attacks of vertigo, on both occasions when sitting in a barber's chair with his head thrown well back in order to be shaved. Also, like the guardsman, he had had transient spells of mental depression.

The periods of unconsciousness in the preceding cases have been greatly exceeded. Charcot[2] relates a case in which a man was in this automatic condition for eight days and travelled from Paris to Brest, and there is a still more remarkable case, the particulars of which are given by James,[3] in which the automatism lasted two months.

The medico-legal importance of such cases is evident. Automatism after actual epileptic fits is well recognised by medical men and even magistrates are less sceptical than they were about its possibility. It is well that it should be known that exactly similar attacks may occur not only after epileptic attacks but even in those who have never suffered from actual fits. But it may be extremely difficult in any given case to decide whether a person is truthful in professing to be entirely oblivious of past actions on his part. In the cases which I have related in this paper the aimlessness of the wanderings, the immediate return home, and the painful apprehension of the sufferers lest they might have a fresh attack, were enough to convince those who saw them that they were not simulating. If on a future occasion they were to do something unlawful during an attack of automatism they might find it extremely difficult to extricate themselves. I have persuaded these patients to carry with them everywhere a card stating that they are liable to such attacks and giving the names of two responsible persons who could be communicated with in the event of their being found wandering or getting into the hands of the police.

Wimpole street, W.

A NOTE ON THE ETIOLOGY OF YELLOW FEVER.

By JAMES B. TOMBLESON, M.B., B.Ch. Oxon.

As an excuse and, I hope, not an entirely insufficient one, for adding to the literature of this subject I plead an interesting experience. While working in my laboratory with a bacillus found in pure culture in the blood of a yellow fever patient after death, in a town where yellow fever has never been known apart from one or two imported cases—in which town, too, I had been living uninterruptedly for 27 days since leaving the death-bed of the above-mentioned patient—I contracted the disease myself. Happily I did not suffer in a severe form and after recovery I found the same bacillus in my own blood, taken at the beginning of the disease. Having, I hope, justified myself before writing of my work I wish to thank Dr. C. W. Daniels for so kindly taking charge of the slides and specimens connected with the work and for arranging for the printing of this article; and Messrs. S. Pearson and Son for providing me with my laboratory equipment.[1]

My idea in giving this account of my work is to give, first, a statement of the different occurrences in chronological order; secondly, a description of what I know of the properties, &c., of the bacillus; and thirdly, a short discussion of the bacillus in its relation to yellow fever.

On Jan. 3rd, in Coatzacoalcos, I was bitten in the evening about 8.30 P.M., in the room of a patient suffering from yellow fever, by two brown mosquitoes which appeared to me to be a variety of culex. I killed the mosquitoes and thought no more about the matter. On the 8th, in my laboratory at Rincon Antonio, at about 4 30 P.M., I was suddenly seized with pain in the lower part of the back and loins, aching of the limbs, and frontal headache. I took my temperature and found it to be 99·6° F., with a pulse-rate of 80. I at once took 15 grains of sulphate of quinine and went to my house. The symptoms became rapidly worse, my face got red and swollen in appearance, with the conjunctivæ injected, and the eyes became very intolerant to light. At 5 30 P.M. my temperature was 101·6° with a pulse-rate of 80, and at 6 30 the temperature was 103·2° with a pulse-rate of 80. I went to bed at about 6.45, drank some whisky and Apollinaris water, and shortly afterwards began to perspire. After some hours I went to sleep and woke in the morning after a restless night with a temperature of 99°, feeling a little weak and aching in the eyes and back, but otherwise little the worse for my experience. The weakness passed off in two or three days. Immediately after I entered my house my wife took three slides of blood from my ear with antiseptic precautions and these I examined on the following days. I found no malaria organisms, but (1) a short oval bacillus almost coccoid in form; (2) a longer but still short bacillus with rounded ends; and (3) a long beaded bacillus resembling in one specimen the tubercle bacillus very closely.

On Jan. 19th I had a precisely similar attack, an accurate reproduction of the first in every way, except that it was slightly less severe. In this case, too, my wife took three blood slides which on examination showed the same bacilli as those which were seen in the earlier slides, with No. (1) in much greater profusion and No. (3) in very small numbers; in these slides, too, I found no malaria organisms though I searched very carefully. At this time I did not connect these occurrences with yellow fever at all seriously but simply kept the slides and data for future reference.

On Feb. 24th I went to a case of yellow fever five or six days old and, unfortunately, beyond the chance of recovery when I arrived. Soon after my arrival I took two slides of blood from the finger, putting two streaks of blood on glycerine agar, and a cultivation in peptone broth. These I incubated by keeping them in my black travelling case and putting it in the sun for half an hour every now and then. One agar tube after two days showed a growth which afterwards turned out to be the staphylococcus pyogenes; the other remained sterile, so on the 26th I poured some of the patient's urine into the tube, allowed it to stand for a minute, and then poured it off again, heating and plugging the end of the tube. The patient died on Feb. 28th after a typically severe course of the disease (albuminuria, black vomit, black motions, uræmia with Cheyne-Stokes breathing, hiccough, &c.) and immediately after death I extracted three cubic centimetres of blood from the liver by means of a sterilised hypodermic syringe and from this I took one slide, putting the rest into a sterile test-tube and plugging. On the same afternoon I returned home to Rincon Antonio and placed the culture tubes and the post-mortem blood into the incubator until the following morning.

The results of the examination of these slides and cultures and the cultures subsequently taken were very interesting. In the fresh blood slide, in the post-mortem blood slide, and in the slide taken from the incubated post-mortem blood serum I found an oval bacillus precisely similar in appearance to that found in the slides of my own blood above referred to *and that bacillus alone.* In the culture (agar) of the urine, which was a very full one, the whole surface of the agar being covered with colonies, I found the same bacillus with a short rather more slender rod. In the blood broth I found the same bacillus again with a longer rod. Beyond mentioning these facts it seems to me hardly necessary to go into the examination. I had no difficulty in getting pure cultures and they grew well on ordinary peptone agar.

As I had found this bacillus in such purity and so uniformly I thought it worth while to experiment further with it. Accordingly I injected two cubic centimetres of an emulsion of a pure culture in normal salt solution directly into the liver of a native dog, an animal more than half coyote Three days later the dog was evidently ill and vomited bilious matter twice, its condition got worse up to the seventh day when it began to recover, so on the eighth day I injected another stronger dose, the dog was ill again on the next day but afterwards began to recover, and on the fourteenth day it appeared to me that it was out of all danger, so I shot it and took some blood from its heart I also took some of its liver, spleen, and kidneys (which I have not examined) I tried its blood serum with a pure culture of the bacillus and found that diluted 50 times, it clumped a young agar culture, the reaction beginning in two minutes and being complete in ten minutes Thus I proved to my own satisfaction that the bacillus under examination was at all events pathogenic

---

[2] Leçons du Mardi à la Salpêtrière, 1889.

[3] Principles of Psychology, vol. i., p. 391.

[1] The slides referred to were sent with Dr Tombleson's paper to Dr. C. W. Daniels and most of them have been forwarded to him at Kwala Lumpor. Dr. G. C. Low, through whom we received the paper, has others of them and states that bacilli answering to Dr. Tombleson's descriptions are to be seen in them.—Ed. L.

Next I procured a monkey and after letting it get comfortable in its new home I injected directly into its liver a similar dose to the one I used with the dog In 12 hours the animal was ill and in three days it died with black vomit and motions albuminuria, Cheyne Stokes breathing, and hiccough Dr Martinez, my colleague, who with me witnessed its death was struck, as I was, *with the close likeness to the death of a human being from yellow fever* I took, immediately after death, specimens of its blood and of most of its organs Pieces of the liver, the kidneys, and the spleen I smeared on agar and incubated for 12 hours, the rest I hardened in formalin 10 per cent and alcohol 90 per cent. The blood serum and the organs (incubated and not incubated) contained the bacillus in easily recognisable numbers *the slide of blood serum being indistinguishable in appearance from the one taken from the yellow fever patient mentioned earlier* From the blood I cultivated the same bacillus without difficulty and it grew in the agar in which I incubated the liver and other organs in pure culture

On March 27th I was suddenly attacked by what turned out to be a modified attack of yellow fever and I give a fairly detailed description of this, so that there can be no doubt on the subject, the connexion between it and my earlier experiments I shall give later The onset was sudden At 10 30 A M sharp pain in the back and the limbs rapidly developed with severe frontal headache, with pain in the eyes and intolerance to light At 11 A M the temperature was 101 4° and the pulse was 80 At 11 15 A M the temperature was 102 3° and the pulse was 84 Three blood slides were taken At 11 30 A M the temperature was 103 2° and the pulse was 104 I drank a cup of hot tea very sweet, and wrapped myself up in many blankets I soon began to perspire At 12.30 P M the temperature was 102 5° and the pulse was 84 I vomited bilious matter, was washed, and was put in ordinary coverings. At 1 30 P M the temperature was 101 8 and the pulse was 66 I vomited bilious matter again At 3 30 P M the temperature was 101 4° and the pulse was 66 I had two dozes of sleep a quarter of an hour each At 5 30 P M the temperature was 100 6° and the pulse was 72. A very definite yellow tinge was present in the conjunctivæ and on the skin of the face the flexor surface of the arms and the abdomen At 7 30 P M the temperature was 99 8° and the pulse was 58 I took one ounce of brandy and vomited again At 8 30 P M the temperature was 100° and the pulse was 64 I slept fairly quietly On March 28th at 4 30 A M the temperature was 99 8° and the pulse was 64 I took four ounces of milk and Apollinaris water in sips At 8 30 A M the temperature was 99 4° and the pulse was 64 The urine was high coloured and there was a large quantity of albumin The yellow tinge was more evident still. From this stage I got slowly but surely better, on the next day my temperature fell to normal and my pulse rose to 72 which is for me normal, and two specimens of urine being taken one only showed a trace of albumin By April 5th I was able to move about a little and examined the blood slides taken in my bedroom I found the same bacillus in the slides and also found that my blood serum clumped a ten days old culture of the bacillus from my laboratory, a dilution of 1 in 20 being employed and the reaction complete in ten minutes I had not a younger culture, not having been able to prepare one but a control hanging drop established the test.

This ends my first part and I will now pass on to the properties, &c of the bacillus The description is not as full as I could wish but ill health in myself and others has made it impossible for me to do more The heat here makes the use of gelatin media extremely difficult and tiresome The bacillus, as will be seen from the description, is in many ways very much like the bacillus icteroides of Sanarelli, a complete description of which I had not seen until just before my own attack of yellow fever, but it is difficult to say whether the bacilli are the same, as from my reading on the subject it appears that no two descriptions of the bacillus icteroides are alike and the differences are in important points, such as the staining by Gram s method, the fermentation of milk glucose and so on The bacillus as I have seen it is from 0 5 μ to 2 μ in length, the shorter forms being found more particularly in the blood and in cultures, and the longer forms in the tissues and in very old cultures The middle sized forms are also found in larger numbers in cultures grown at the ordinary room temperature (from 20° to 25° C) The bacillus is actively motile and this is especially so in the middle sized forms, the longest form is hardly motile, if at all The bacillus stains fairly well with all the ordinary stains and also with Gram s method (this is much more definite when carbol gentian violet is used than with aniline gentian violet, but is fairly good with aniline and with Weigert's modification) For demonstration in tissues infinitely the best results are obtained by staining for one hour is toluidin blue, decolourising with very faintly acid alcohol and counter-staining with eosine This gives much better results than Gram's method, by which, however, the bacillus can be differentiated

The bacillus grows well on all the ordinary artificial media and in broth

Gelatin plates —Deep colonies, small solid looking lumps, oval in shape granular in appearance, and yellowish white in colour Superficial colonies greyish white and granular

Gelatin streak —Slow growth, nothing typical Does not liquefy the medium

Agar plates —Deep colonies the same as in gelatin, having the same peculiarly solid look, these do not grow more than one sixteenth of an inch in length even in two or three weeks

Agar streak —Similar to the descriptions of Sanarelli's bacillus, but I do not notice any great difference between 48 hour cultures at 37° C and at the temperature of the room The centre of the streak is raised and has a separate outline on the top of the side parts and the growth is rather fluid in consistency

Agar stab —Nothing characteristic was noticed, but my agar was not very clear Does not radiate into the medium

Broth —In broth the bacillus grows well, forming cloudiness and later a sediment at the bottom of the tube, tends to decolorise the broth

Milk —In milk the bacillus grows fairly well; does not coagulate in seven days

The bacillus will grow at any temperature between 20° and 40° C and probably at even higher temperatures. It is aerobic and facultative anaerobic and it does not produce gas in sugar media It resists boiling for half an hour

Spore formation —The preceding statement makes me incline to think that spores are formed and also what I shall say next, but I never succeeded in staining any spores in specimens by any differential method I tried growing the bacillus on agar in a tube open at both ends, corked, with a glass tube through each cork After a week it seemed quite dry and I blew air gently through the tube with the mouth on to an agar plate *once only*, this agar plate I incubated and 24 hours later it showed 27 colonies While doing this I inadvertently drew air through the tube inwards and *this occurred eight or nine days before my own attack* Also, the forms seen in several slides and in old cultures, especially the latter certainly appear to be forms just before sporulation Moreover, the bacillus resists drying to at all events a very great extent, a culture dried at 30° C for three weeks grows just as well as ever if transplanted to a fresh medium

And now we come to the discussion as to whether or not the bacillus in question is or is not *the* factor in the etiology of yellow fever Two great objections made to all bacilli advanced as possible causes of yellow fever are these (1) Why has the bacillus not been found before? and (2) why are cultures of the blood, &c, sterile? Now as to the first objection I found it in the following way When the slides of my blood were taken the first time carbol fuchsin and borax methylene blue happened to be the only stains which I had ready prepared which seemed to me appropriate, and I had three slides, so (purely as a whim) I put the third slide into water, poured a few drops of a saturated alcoholic solution of hæmatoxylin into it, and left it for 24 hours to see what would happen, intending if nothing happened to stain it again with something else. The result was that I found the above-mentioned bacilli *stained bright red* in that specimen and nothing satisfactory in either of the others. If I had depended on the borax methylene blue and carbo-fuchsin specimens I should not have found the bacillus. Moreover, in the tissues, unless the bacilli were in large numbers, they would be very easily missed indeed, even stained by Gram's method, unless this was done very carefully with carbol-gentian violet instead of the aniline gentian violet, whereas with toluidin blue they are easily seen, and I believe that toluidin blue is not very commonly used for bacillary staining and may not have been used in other experiments. These reasons, though not an absolute explanation, are still, in my own opinion, sufficient to be reasonably satisfactory.

The second question is much more difficult to answer. I can only surmise that there are times when more bacilli are present in the peripheral blood than is the case at other times, and these times appear to me to be two in number: firstly, at the very outset when the febrile explosion begins (and this time is one at which the physician or bacteriologist is rarely present, or, if present, he is not likely to see any valid reason for taking specimens of the blood for bactoriological examination); and, secondly, when the secondary fever begins after "the period of calm," which time appears to have been considered too late in the disease for the presence of bacteria in the peripheral blood to be likely. These times are suggested to me, as is of course easily seen, by my finding the bacilli at these times in my own blood and in that of another case.

So far, then, we have it that the bacillus was found in my blood in two small febrile attacks; it was found in the blood of a typical fatal case of yellow fever; it was injected into and found capable of producing disease in a wild dog; it was injected into a monkey, producing a disease having the symptoms and typical ending of yellow fever; and it was found after death in the blood and tissues of the monkey in pure culture. It was inhaled by myself and I, after an interval of eight or nine days, contracted yellow fever, happily cut short, as I believe, by the comparative immunity produced by the two mild attacks previously mentioned; my blood serum after recovery clumped a motile culture of the bacillus and my blood taken at the outset of the disease contained the bacillus.

Surely here is a chain of evidence which goes far towards proving that in this bacillus we have the germ of yellow fever. Another reflection suggested by the experiences narrated above is that a comparative immunity may be, and probably is, caused in those who residing in an infected district yet never have a serious attack of the disease, by a series of one or more slight attacks which, though they present the typical early symptoms of a case of yellow fever, are, from their want of serious aspect, regarded as malarial in origin. This, I believe, is what occurred in my own case and I also believe that by this means I was saved from an attack which would have been most serious, probably fatal.

The experiment with regard to the propagation of the disease in the air and the possibility of receiving the infection by inhalation appears to me to be of the highest importance. When we consider that the urine of one case undoubtedly contained very large numbers of bacilli and that the urine in these tropical climates is thrown anywhere and everywhere we must realise that here is a possible explanation of those epidemics, often quoted, which have occurred in places where there are few mosquitoes or none at all. If, too, though this I have not proved, the bacillus produces spores, a culex fatigans or other foul-feeding mosquito may easily pick up the spores or the bacilli themselves and carry the infection, thus accounting for cases which have arisen when either the infecting case has been throughout protected from mosquito bites or when the interval between one case and the next has been too long to admit of its being a case of direct transmission from one to the other by the mosquito.

There is one other thing only I wish to emphasise before concluding this article and that is the question of cure by antitoxin. My experiment with the dog appears to point to that animal as a suitable one for the experimental production of an antitoxin and if circumstances render me unable to follow this matter up myself I shall feel that my work has done some good if it induces some abler hand than mine to take up this work and, producing a curative serum, to confer the greatest possible boon on the inhabitants, white and coloured, of the yellow fever countries.

POSTSCRIPT.

Since writing the account of the earlier part of my work on the etiology of yellow fever which ended with my own attack I have been able to examine five more cases of the disease and have found in, and cultivated from, each case the bacillus before described. I propose to give a short statement of each case and then a few remarks on points which have become clearer to me since the time of my own attack.

CASE 1.—The patient was an American. This case was of a mild type with all the ordinary symptoms but no black vomit. I found a bacillus in the blood and cultivated it pure from the urine. Very good slides were obtained showing the bacilli in the blood. The patient recovered and never more than one-sixth albumin was present.

CASE 2.—The patient was a Yorkshireman. This was a fairly severe case. Black vomit was present. Over one-half of albumin was present. I found bacilli in the blood and sent two beautiful slides showing them and cultivated the bacillus pure from the urine. Recovery ensued.

CASE 3.—The patient was a Mexican from the high ground. The case was a fairly severe one. Black vomit was present on the fifth and sixth days. The albumin amounted to from one-quarter to one-third. Pure cultivations of the bacillus were obtained from the urine. I could not obtain a specimen of the blood.

CASE 4.—The patient was a Mexican from the high country. I saw him only once a short time before his death. Black vomit occurred every few minutes. I took a specimen of his urine; albumin to the amount of one-half was present. Pure cultivations of the bacilli were obtained.

CASE 5. *Case imported into Coatzacoalcos from Vera Cruz.*—The medical man at Coatzacoalcos sent me a small quantity of blood passed from the rectum of a patient under his care shortly before death. The bacillus was present with the bacillus coli communis and several others from which I separated it without difficulty.

These other cases coming after the earlier work appear to me to make certain proof that the bacillus mentioned is the active agent in the production of yellow fever. They show conclusively that the bacillus is always to be found in the urine of the patient after the appearance of albumin and this is, of course, early in the disease. The importance of this fact appears to me to lie in (1) the value as a method of early and certain diagnosis in doubtful cases, and there appears to me to be always a good deal of doubt in the mind of the practitioner in the first three days of the disease; and (2) the valuable evidence which it provides as to the means of the spread of the disease. Of course, it is a proved fact that certain mosquitoes carry the germ of yellow fever, but it appears to me that beside this means of spread we must consider the possibility of the disease being spread by the inhalation of spores produced in the open air by the growth of bacilli in urine which is thrown on to the ground near the dwelling of the patient in 99 cases out of 100. In fact, in the case of the poorer persons the urine is simply passed on to the mud floor of the house and here is incubation of the bacillus in most favourable circumstances for the production of spores.

In this method of spreading the disease lies the explanation of the fact that drainage has practically cleared yellow fever out of Havana while no one could say that the number of mosquitoes is materially lessened. When I was in Havana last September I caught (and was bitten by) specimens of stegomyia fasciata and culex fatigans, as well as other culicidæ and anophelidæ.

Rincon Antonio, Island do Tehuantepec.

MEMORIAL TO A MEDICAL MAN.—A stained-glass window was unveiled on August 16th at St. John's Church, Halsetown, St. Ives, Cornwall, in memory of the late Dr. Richard William Waudby Griffin. The window consists of three lights and contains figures representing St. Pantaleon and St. Luke. The two saints stand on pedestals, the one holding a vessel containing healing medicine and at the side of the other is the emblematic ox. The vicar in the course of his sermon after the ceremony referred in high terms to the members of the medical profession and alluded to the noble work done in Southampton by one of their number in whose memory the window had been given.

A CASE OF

LARGE BLOOD CYST IN THE ARACHNOID SPACE SIMULATING BRAIN TUMOUR; OPERATION; RECOVERY.

BY JAMES TAYLOR, M.D. EDIN., F.R.C.P. LOND.,
PHYSICIAN FOR OUT-PATIENTS TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE;

AND

CHARLES A. BALLANCE, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE.

THE patient was a man, 34 years of age. His family history is marked by a clear tendency to mental instability. His mother committed suicide, one sister is now in an asylum, and an aunt has been temporarily insane. His father died 20 years ago. A "fit" is said to have been the cause of death, but no more precise data are available. The patient had scarlet fever in childhood and a severe attack of enteric fever when 19 years old. He denied having had syphilis. He had been moderate in the use of alcohol and tobacco. In February, 1902, he accidentally fell on his way to his work, striking the right side of the head against a stone wall with some violence. The fall was so severe in its effect as to necessitate his return home and he was unable to work that day. The present illness began in May, 1902, some three months after the fall, with headache. This at first was entirely relieved by bromide and antipyrin, but returned after being relieved for three weeks. From that time it appears to have been uninfluenced by treatment. The headache was described as a shooting pain referred to the right side of the head with dull aching over the right eyebrow. No optic neuritis was detected at this time. On July 2nd he went to Dover but ten days later was brought home, as he began to have difficulty in walking and was becoming dull mentally. When again examined he was drowsy and the simplest mental process seemed to require great effort. He was unable to walk without assistance and there was weakness of the left arm and leg variable in its degree. The pain in the head had in no way abated. Some blurring of the right optic disc was noticed about this time. He was admitted into a local hospital where he remained a month. While there he was noisy and troublesome at night and lost control over the sphincters. He was considered to be insane. There was now increase of the left knee-jerk and ankle clonus was present on the left side. Early in August he was seen by one of us (J. T.) at the instance of Dr. L. Cooper of Rochester, to whom we are indebted for the history of the case. The presence of intense optic neuritis favoured the diagnosis of tumour of the brain and the variable character of the paralysis of the left arm suggested that it was a fluid tumour, possibly an abscess. The patient was therefore admitted to the National Hospital for the Paralysed and Epileptic on August 20th, 1902. We are much indebted to the careful notes of the house physician, Dr. Gordon Holmes, for the following particulars and we desire to express our appreciation of Dr. Holmes's zeal and skill in the management of the case.

On admission the general health was not much deteriorated. Some loss of memory for recent events was present. The gait was irregular and swaying. The deep reflexes were exaggerated on the left side. The loss of sphincteric control and the left-sided paralysis were no longer present. Optic neuritis (swelling 4 D.) with retinal hæmorrhages existed on the right side. There was less marked optic neuritis (swelling 1·5 D.) without hæmorrhages on the left side. Horizontal nystagmus was specially marked in the right eye and on movement of the eyes to the right. The headache was intermittent. There was doubtful tenderness over the right frontal region on percussion. The patient had been taking iodide of potassium prior to admission and this drug was continued in larger doses but it produced no appreciable effect. A diagnosis of cerebral tumour, probably in the right frontal region, was made and operation was decided upon.

First stage of the operation.—On Sept. 1st, chloroform having been given, a flap including most of the anterior half of the right side of the scalp was thrown down and the underlying bone over a large area was removed with the saw by the "chess-board" method. The dura mater was very tense. The scalp flap was then sutured into position.

Second stage of the operation.—On Sept. 6th chloroform was again given and the scalp flap was thrown down. The dura mater was yet more tense and prominent. On incision of the dura mater a tense, fluctuating and pulsating swelling of a maroon-red colour was exposed. It completely filled the floor of the wound and bulged through the opening in the skull. The pulsation was expansile like that of an aneurysm. The opening in the skull was insufficient to expose the edges of the cyst. The cerebral hemisphere was displaced inwards and so compressed laterally as to present the appearance of a ridge about one inch in width on the median aspect of the tumour. The opening in the skull was further enlarged and this stage of the operation was concluded by resuturing the flap.

Third stage of the operation.—On Sept. 18th a temporary ligature was first placed on the internal carotid artery a short distance above its origin. The wound in the head was then reopened; the opening in the bone measured five and a half inches antero-posteriorly by four and a half inches vertically. The tumour, which was not adherent to the brain, was cautiously inveigled from its bed in the arachnoid space by manipulation with the fingers. Its anterior, posterior, and inferior margins were lifted without great difficulty from within the skull, leaving a large space between the brain and the bone. It was attached by a slight adhesion to the dura mater near the posterior inferior angle of the parietal bone and to the cerebral arachnoid over the inferior aspect of the temporo-sphenoidal lobe. It had no connexion with any named vessel, but each of these adhesions was vascular. There were also certain delicate threads of connective tissue between the wall of the cyst and the wall of the cavity in which it lay. In front it almost reached the anterior extremity of the frontal lobe; above it extended to within one inch of the superior longitudinal sinus; below it compressed the apex of the temporo-sphenoidal lobe, extending under the brain to the clinoid processes; while behind it was spread over the surface of the parietal and occipital lobes. On removal it measured seven inches long, four and a half inches from above downwards, and one and a half inches in thickness. When within the skull the tumour probably occupied a larger superficial area and was less in width as a consequence of the great pressure to which it was subjected. Its removal was only attended with slight bleeding. The hemisphere of the brain was much compressed and its convolutions were flattened. It visibly expanded when the ligature was removed from the internal carotid. The scalp flap was replaced and sutured in the usual way.

The patient made a good recovery and was discharged well on Jan. 15th, 1903. He had a fit in February. He was in perfect health on May 26th last and was present at the clinical lecture at the hospital on that day.

This case naturally raises the old question of the occurrence of hæmorrhages and false membranes within the arachnoid space so ably dealt with by Dr. J. Wiglesworth in the *Journal of Mental Science* for January, 1888. In 400 post mortem examinations of insane patients he found blood or membrane, or both combined, in the cerebral subdural space in 42 instances, of which 22 were cases of [illegible] ly in some of these [illegible] such as falling off a [illegible] fell off her chair one morning in a fit; two hours after this she presented all the symptoms of a copious hæmorrhage." At the death of this patient nine months afterwards a thick laminated membrane was, as might well have been expected, found in the subdural space. It is worthy of note that our patient had a fall with traumatism of the head three months before his urgent symptoms came on. In a few cases it is clear from the history that the hæmorrhage occurred independently of traumatism; but it is not always possible to determine in cases where there is a history of a fall whether the fall was the cause of the hæmorrhage or the hæmorrhage the cause of the fall. It is well known that blows on the head do produce serious hæmorrhages within the skull and yet the symptoms are delayed for hours or days. Whether, however, the hæmorrhage is due to traumatism or not hæmatoma will in any case result.

It was shown many years ago by the late Mr. Morrant Baker,[1] that a hæmatoma may slowly increase in size by constant slight fresh hæmorrhages into it, a condition which is well known in surgery in the history of an ordinary hæmatocele. Hæmatoma in the arachnoid cavity therefore may, and probably in some cases does, behave exactly as does a hæmatoma in the tunica vaginalis testis.

---

[1] St. Bartholomew's Hospital Reports, vo

There has been much discussion by various authorities as to the nature and cause of the fibrous cyst walls which are formed, but it does not appear to us that they present much difficulty. A growing hæmatoma contains, besides fresh blood, blood-clot; the latter, being a dead tissue, constitutes a foreign body, and like a bullet or any other foreign body, it becomes surrounded by a fibrous areolar capsule. The reason why these arachnoid hæmatomata are so relatively common in general paralytics is apparently because their vessels suffer from a syphilitic process.

It had been proposed to send our patient to a lunatic asylum and it is curious to conjecture what would have happened had this fate overtaken him. He might well have passed muster, at least at first, as a general paralytic, but it is hardly likely that he would have been duly numbered and labeled as such.

FIG. 1.

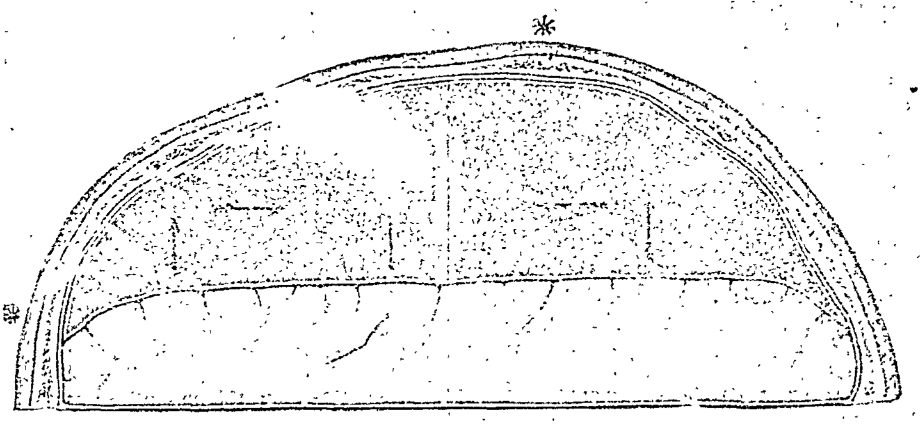
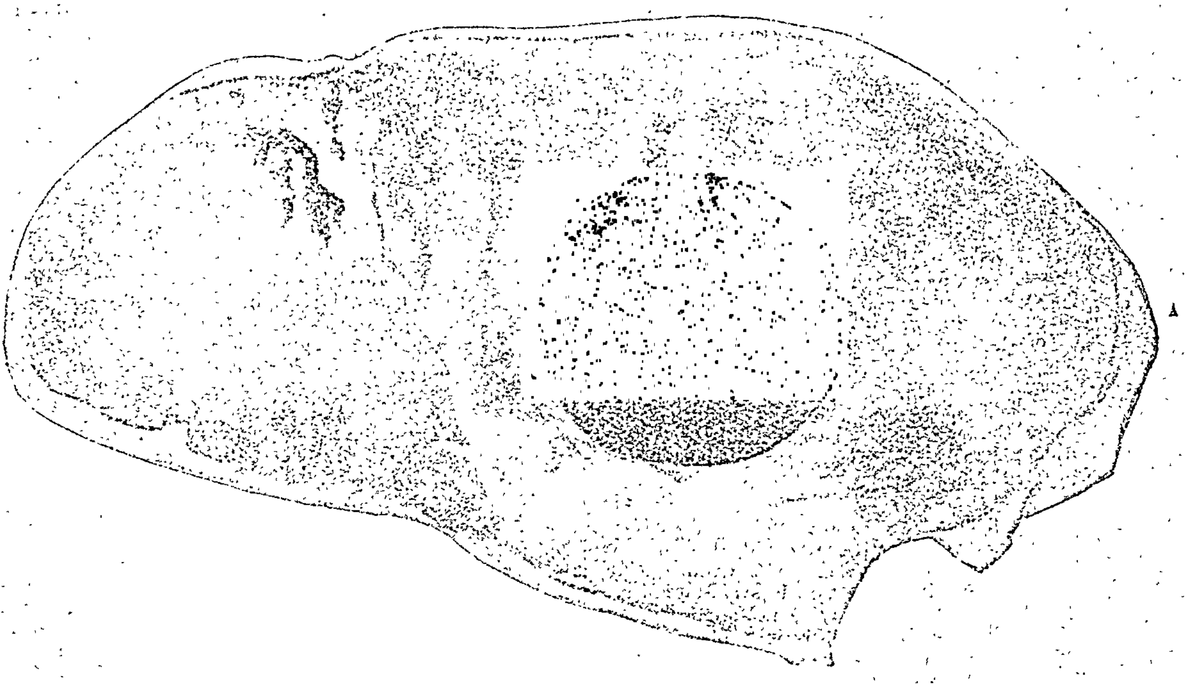


Diagram of a horizontal section of the head to show the position of the "cyst," the compression of the cerebral hemisphere, and the occurrence of *expansile pulsation in the tumour.* Half natural size. The size of the drawing corresponds to the cast of the patient's head which was made when he was convalescent. The marks * * show the extent of the opening in the skull. The tumour being fluid the pulsations of the brain were transmitted in every direction; hence when the finger and thumb grasped the centre of the tumour (see arrows in the centre of the cyst) they were separated by an expansile pulsation comparable to that which obtains in aneurysm.

FIG. 2.



Reproduction of a photograph of a coloured drawing of the outer surface of the tumour (hæmatoma of the arachnoid cavity) which is in the Museum of the Royal College of Surgeons of England (3837 A). ⅘ths natural size (M. H. Lapidge). A, Anterior border of the cyst. The following description of the tumour is by Mr. S. G. Shattock. A somewhat flattened, irr[illegible] inches in length and over three inches in extreme breadth, which was removed by operation from the [illegible] surface is almost everywhere smooth, but here and there is slightly roughened at spots where it has be[illegible] adhesions. The opposite aspect which lay against the cerebral hemisphere is less smooth and for the most part is [illegible] with a thin layer of lymph or decolourised blood-clot, in which the impress of the subjacent cerebral vessels is particularly obvious. No separable membrane can be demonstrated on either aspect of the cyst which appears thus to have lain between the dura mater and arachnoid and to be altogether of adventitious origin. A section has been made to display the contents after the hardening of the specimen in formol. The divided surface of the solidified contents (which in the recent state were felt to be fluid) shows a colourless translucent serum in which there lies a deep red clot distributed without any trace of lamination or other definite arrangement. Microscopic sections made from the outer aspect of the cyst or subdural hæmatoma exhibit a well-defined wall of uniform thickness and constructed of lamellar [illegible] clefts of which extravasated blood occurs in all grades of change. Vessels are here and there enc[illegible] adheres to the inner surface this is sharply demarcated and is not undergoing organised incorporation with the wall of [illegible]

At the second stage of the operation when the cyst was exposed the expansile pulsation (the nature of which was not at the moment obvious but which is explained by the accompanying illustration—Fig. 1) suggested the possibility of an aneurysm. It was therefore decided to enlarge the opening in the bone and to remove the tumour on a subsequent occasion.

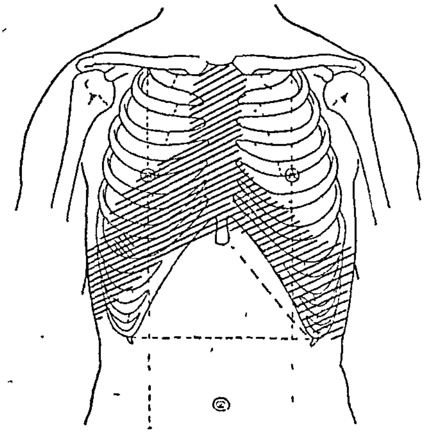
Such large blood cysts in the arachnoid space must be rare. The museums which we have inspected contain no such large cyst, but one is figured by Hamilton.[3] There can be no doubt that the condition is not due to inflammation but is a simple hæmorrhage.

A CASE OF ECTOPIA CORDIS.

BY SIR ISAMBARD OWEN, M.A., M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN TO, AND LECTURER ON THE PRINCIPLES AND PRACTICE OF PHYSIC AT, ST. GEORGE'S HOSPITAL;
AND
MORRIS J. WILLIAMS, L.S.A.

THE patient was a girl, aged 14 years. She had suffered from an attack of rheumatic fever in 1901 but was not then attended by a medical man. In 1903 she came under Mr. Williams's care in a fresh attack of rheumatic fever, followed by anasarca, the urine having been albuminous throughout. She was seen by Sir Isambard Owen at St. George's Hospital in consultation with Mr. Williams on May 22nd. The following physical signs were then present in the thorax. The area of cardiac dulness was as indicated by the shading in Fig. 1 which is copied from a diagram made at the time.

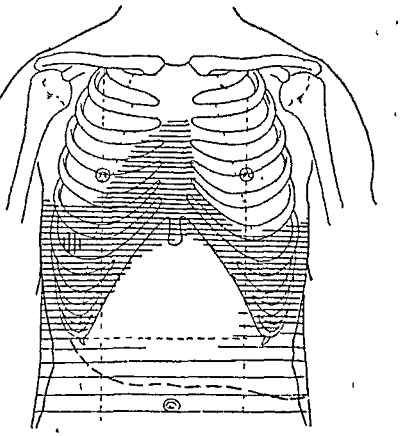
FIG. 1.



The apex beat of the heart was, as shown on the figure by cross-hatching, in the sixth right interspace, nearly an inch to the right of the nipple line. No impulse was felt elsewhere. A systolic murmur was heard over all the dull area, culminating at the apex beat; it was well conducted into the right axilla and was well heard at the angle of the right scapula but not at all at that of the left. A shorter and rougher double murmur culminated in the second right space close to the sternum (the normal "aortic area"); it was conducted down the sternum and was well heard at the lower part of its left margin, but it was not heard in the neck. The murmurs were but faintly heard over the normal præcordial area to the left of the sternum, except at its sternal margin. No murmur was heard in the abdomen. The pulse presented no special feature. As shown in the illustration, what was presumed to be liver dulness was found on the left side and what appeared to be splenic dulness was found on the right side.[1] The edge of the liver was doubtfully felt in the left hypochondrium in the position of the broken line in the illustration. The bases of the lungs were not very resonant but there was no abnormality of the breath sounds or any other indication of past or present disease of the lung or the pleura. There was a little ascites present but not enough to interfere with the action of the diaphragm. Nothing else remarkable was noticed in the patient and the malposition of the heart was verified by an x-ray examination. A skiagram was taken by Mr. Frank Addyman, superintendent of the x-ray department of the hospital; it represented the thorax viewed from the back. The position of the heart, mainly to the right of the middle line, and the pointing of the apex to the right were clearly shown. The transparency of the heart to the rays, Mr. Addyman found, was unusually great, whilst that of the lungs was less than usual.

The patient was seen again by Sir Isambard Owen on June 22nd in consultation with Mr. Williams. The areas of dulness and the position of the apical impulse on this occasion were as indicated by the shading in Fig. 2,

FIG. 2.



similarly copied from a diagram taken at the time. The liver was now greatly enlarged, its edge being plainly palpable in the position of the broken line in the figure. The cardiac impulse was felt over the entire area of cardiac dulness, the sternal portion excepted, and not at all to the left of the sternum. The localisation and extension of the murmurs were as on the previous occasion, with the
oint of culmination was in the
in the second. The bases of the
breath and voice sounds were
Ascites was still present.

The special interest of the case, as a living example of a rather rare condition, was due to the presence of valve lesions. The consequent enlargement of the heart enabled its abnormal position and direction to be the more obviously traced, while the localisation and conduction of the murmurs afforded a clue to the situation and direction of the orifices, at least of the aortic side. There appeared to be almost, if not quite, complete dexiocardia, but the course of the aorta was left in doubt, as the basic murmurs, which were very unlikely to be of pulmonary origin, culminated to the right and not to the left of the sternum. The results of palpation and percussion appeared to indicate a reversal of the position of the liver and the spleen. The x rays failed to show the localisation of these organs either on the screen or on the skiagram. As far as can be made out the health and comfort of the patient were in no way affected by the malposition. The valve lesions, it may with probability be assumed, originated in rheumatic endocarditis in 1901 or in the present year.

---

[3] Text-book of Pathology, vol. ii., part 2, p. 604.

INTUSSUSCEPTION OF THE VERMIFORM APPENDIX.

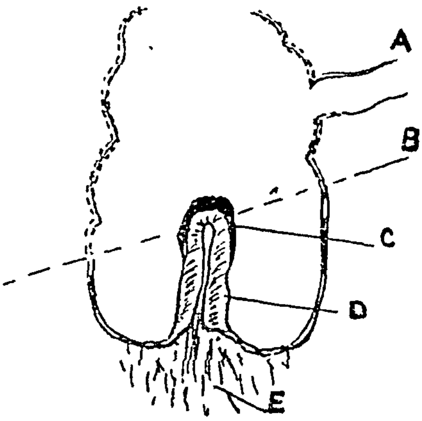
BY F. POWELL CONNOR, F.R.C.S. ENG., I.M.S.,
HOUSE SURGEON, ST. BARTHOLOMEW'S HOSPITAL.

INTUSSUSCEPTION of the vermiform appendix is a rare and interesting condition. The examples found in medical literature show that the affection presents considerable variability as regards the manner in which the appendix is invaginated. In most cases the pathology is obscure, as it is in the commoner varieties of intussusception, but in some, as in the case here described, there is evidence pointing to its causation. The age incidence in this condition seems to be rather later than in the more usual forms and a tendency towards chronicity marks most cases. The latter is explained by the fact that acute obstruction is not a necessary concomitant and sloughing and gangrene of the intussusceptum resulting from strangulation of the mesentery are not so early produced. The case described was under the care of Mr. H. J. Waring, to whom I am indebted for permission to publish it. It presents some of the features common to other reported cases but differs markedly in other respects.

A boy, aged nine years, was admitted into St. Bartholomew's Hospital on April 16th, 1903, suffering from abdominal pain. The following history was ascertained. About a month previously he received a blow on the abdomen resulting from his brother falling against him. He vomited after the accident and was kept in bed for four days. On being allowed to get up he was much troubled by constipation and for a week before admission he was given castor oil daily. The abdominal pain continued on and off. On the 16th the patient vomited and was brought to the hospital by his parents and was admitted. The following note describes his condition at that time: "The patient is a bright-looking boy, with high colour; temperature 99·2°, pulse 100, respiration 20; he complains of pain in the 'stomach.'" Both knees were kept drawn up, the abdomen was held rigid and moved little on respiration, and the right rectus particularly stood out. No abnormal dulness was present but there were some tenderness and an indefinite resistance in the right iliac fossa. Rectal examination was negative and nothing else abnormal was discovered. The case was thought to be probably one of subacute appendicitis or some tuberculous mischief. No fresh symptoms appeared and the child steadily improved and was discharged on April 29th quite well except for some thickening in the right iliac fossa.

For a week after his discharge the boy continued well; no pain was complained of and his bowels kept regular. On May 6th at midday the patient was seized with acute abdominal pain, followed by vomiting. He was slightly better that afternoon but towards evening the pain became continuous and the vomiting frequent. He was brought to the hospital and was admitted. The patient was not at all collapsed; his pulse was 140, his temperature was 100° F., and his respirations were 20. The tongue was dry and furred, the cheeks were flushed, and there was no evidence of much pain. On inspection the abdomen was seen to be held slightly rigid and an oval swelling was apparent just above the umbilicus, moving readily on respiration. On further examination the tumour was found to be tender and could be traced towards the right iliac fossa; it was firm and freely moveable. Rectal examination was negative. Considering the absence of shock and vomiting and the fair mobility of the abdomen it was thought that the lump might be accounted for by commencing thickening of the great omentum forming part of a tuberculous peritonitis. But the physical examination gave much more the idea that the tumour was due to an intussusception, and at 10 P.M. this view was strengthened by the passage of two drachms of bright blood by the rectum. An operation was decided upon and after waiting for the parents' consent was performed at 7 A.M.

An incision three and a half inches long was made over the right rectus above the umbilicus and the abdomen was opened. An intussusception was then discovered lying obliquely at the level of the umbilicus. The apex could be felt as a small, hard mass. The great bulk of the intussusception, consisting of ileum, was easily reduced until the cæcum was reached. It was then found that the hard mass representing the apex already felt lay inside the cæcum. Its base was marked by a dimple on the internal aspect of the cæcum surrounded by adhesions. On further investigation this was found to be a completely invaginated appendix the mesentery of which was drawn into the dimpled area. All attempts to reduce this were found to be futile and Mr. Waring determined to remove it together with the caput cæci. The peritoneal and muscular coats were incised in the line shown in the diagram and a silk ligature was introduced into the groove and tightened. This was found still to include the tip of the appendix, so the incision was carried into the lumen of the bowel and the caput cæci was removed with the intussuscepted appendix. The opening in the cæcum was then carefully closed by tiers of suture, the cut edge being turned in, and the abdomen was closed. Recovery from the shock of the operation was satisfactory and a few hours after the patient was fed by the mouth, half an ounce of peptonised milk and ten minims of brandy being given at first and this amount gradually increased. Towards night there was some collapse which was combated by an injection of two minims of strychnine and half a pint of hot saline rectal injection. The face was still pinched and anxious but the pulse had fallen from 180 to 140. In spite of a recurring tendency towards collapse during the following two nights the patient did quite well. The bowels were well opened by enema on the fourth day and his recovery was rapid and uneventful.



A, Ileum. B, Line of section. C, Commencing gangrene. D, Intussuscepted appendix. E, Mesentery and adhesions. The part below the line of section is a diagram of the actual specimen removed.

From several points of view the case is of great interest. It is one further example of a rare condition and is, as far as I know, unique in that the appendix itself formed the apex of the intussusception. I interpret the sequence of events in the child's illness as follows. The intussusception primarily resulted from the blow received a month before admission and was in the first place only appendiculo-cæcal. This occurred as a result of reversed peristalsis, either immediately or a few days later, following on the inflammation round the appendix, which must have been marked judging by the adhesions found at the operation. This view of a traumatic causation is strongly supported by the sudden onset of the symptoms after the accident. That the intussusception was at first only appendiculo-cæcal is proved by the fact that only some resistance could be felt over the right iliac fossa when the child was first admitted. It must have been the irritation of this polypoidal invagination that led to the later and more extensive intussusception. This sequence of events is supported by other reported cases in which, however, an ileo-cæcal or ileo-colic intussusception had resulted. It would be of great interest to know how the appendix is able in such cases to invaginate itself. The production of an intussusception in a piece of ordinary bowel is a problem in pathology often hard to explain. Yet here we have a tube with a large lumen and thin walls. The almost potential lumen and thick walls in the case of the appendix appear to one at first sight as almost absolute safeguards against such an occurrence. A congenital dimpling of the tip of the appendix may be the starting point. It is yet another example of the vagaries which unstriped muscles in the body occasionally indulge in.

Bibliography.—Greig Smith, Abdominal Surgery, vol. ii., p. 678. G. A. Wright Bernard Pitts, THE LANCET, June 12th, 1897, p. 1602. McGraw: and K. Renshaw: Brit. Med. Jour., 1877, vol. i., p. 1470. Edinburgh Medical Journal, *ibid.*, vol. ii., 1897, p. 956. J. McKidd: H. Waterhouse: Patho- 1859. W. Chaffey: 1888, quoted by McGraw. logical Society's Reports, vol. xlix., 1898.

A CASE OF

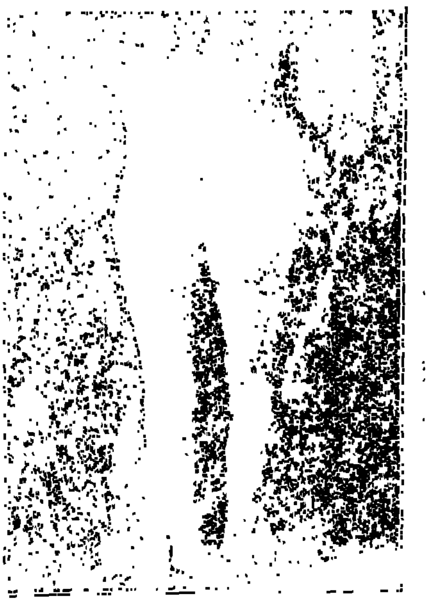
TRAUMATIC ANEURYSM OF THE GLUTEAL ARTERY TREATED BY INCISION OF THE SAC AND LIGATURE OF THE ARTERY DURING INTRAPERITONEAL COMPRESSION OF THE INTERNAL ILIAC.

BY ALAN H. MUIR, M.B., CH.B. GLASG.

A MAN, aged 26 years, was admitted into Swansea Hospital, under the care of Mr. W. F. Brook, on Jan. 7th, 1903, as a case of abscess of the hip following an injury received four months previously. His history was as follows. On Sept. 6th, 1902, whilst riding on a load of pit timber one of the supporting pieces gave way. He was thrown off and struck on the right buttock and other places by one of the falling pieces which measured nine feet. He was carried home. A swelling of the size of a hen's egg immediately developed over the right buttock. The hip and thigh were much discoloured and he suffered from pain of a spasmodic character extending from the hip to the thigh. He was confined to bed for five weeks, during which time the tumour gradually increased in size. On getting up he found walking difficult and painful. Since then the swelling had become larger and tenser and the pain in the thigh and the calf had assumed a throbbing character. The patient was pale and had an anxious expression. His temperature was 98·6° F. and his pulse was good. His condition on admission was as follows. There was a hemispherical tumour over the right dorsum ilii, limited above by the iliac crest and below by a transverse line drawn from the tip of the coccyx. The inner margin was one and five-eighths of an inch from the coccyx and higher up one and a half inches from the sacral spines. To the outer side it extended to the anterior margin of the great trochanter. From the highest to the lowest point it measured nine and a half inches, the corresponding measurement on the opposite side being seven and a half inches. From the right anterior superior spine to the tip of the coccyx measured 13½ inches, as against 10 inches on the opposite side. The skin over the swelling was glistening and slightly numb but otherwise normal. The tumour was circumscribed and on palpation was tender, non-fluctuant, and immoveable in all directions and incompressible. There was no visible pulsation, but when a stethoscope was placed on the tumour pulsation could be made out. This pulsation was tangible and expansile in character and of the same rhythm as the radial pulse. There was a systolic bruit. There was nothing to be made out on rectal examination. The hip was semiflexed and slightly everted, the movements were limited and painful, and the thigh and calf muscles were flabby and slightly atrophied. There was no interference with the circulation in the leg. There were pain and numbness in the right leg extending to the inner side of the foot. A diagnosis was made of aneurysm of the gluteal artery. The patient was put on five grains of iodide of potassium and a modified Tuffnell's diet, with absolute rest in bed and occasional doses of opium to relieve pain. The iodide of potassium was gradually increased until he was taking 17 grains three times a day. During the first and second weeks after admission the swelling increased very slightly in size and the skin became tenser, more shiny, and exhibited a bruised appearance. The pulsation was very much less marked and the bruit was less distinct. The diet was more restricted. During the second and third weeks the bruit disappeared altogether and the pulsation became very difficult and finally impossible to detect. At the same time the swelling became softer and the pain less severe and it began to seem as if operation would be unnecessary. Further shrinking did not take place; indeed, at times the swelling seemed to increase in size, accompanied by exacerbations of pain, and the skin assumed a bruised hue. On Feb. 9th the patient was put on calcium chloride, 20 grains every four hours, in addition to the iodide of potassium. On the 12th an undoubted increase in size and of symptoms took place and operation was decided on.

On Feb. 14th, under gas and ether, the abdomen was opened through a three-inch skin incision over the middle of the right rectus muscle below the level of the umbilicus. The sheath was incised in the line of the skin incision, the muscle was drawn towards the middle line, and the fascia and peritoneum were incised opposite the superficial incision sufficiently to admit of the introduction of two fingers. The internal iliac artery was then found and controlled by the two fingers. The patient having been rolled on to his side an *incision from five to six inches in length was made in the line* of the gluteal artery. The sac was opened and two pints of recent clot resembling black-currant jelly were turned out together with about a handful of fibrinous clot and the cavity was mopped out dry. Relaxation of the compression showed the blood spurting from a large wound in the side of the artery. The bleeding point was secured and a celluloid ligature was applied. On further examination a gaping, fissured fracture, into which the finger tip could be introduced, was found extending from the apex of the sciatic notch to the crest of the ilium and showing no signs of repair. The aneurysmal contents had so laid bare the notch and displaced the pyriformis muscle and gluteal artery downwards that another ligature could be applied well within the pelvis at the point of emergence of the artery from the pelvic fascia. The cavity was then washed out with normal saline solution and closed by figure-of 8 sutures of fishing gut, a drainage-tube was put in, and firm pressure was applied by means of pads. The abdominal wall was sewn up in three layers by buried reindeer tendon and horsehair superficially.

FIG. 1.

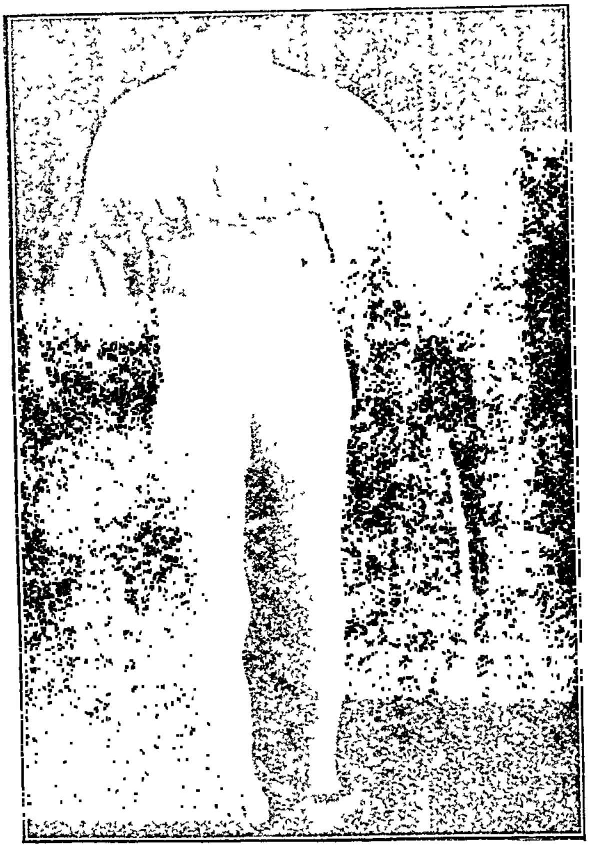


Condition before the operation.

The patient stood the operation well. On the 15th he was dressed, but the drainage tube was still kept in owing to oozing of a bloody grumous fluid. On the 22nd the stitches were taken out. The wounds had healed well, but the tube was still retained as there was a little blood-stained semi-purulent discharge from the huge cavity left. For two or three evenings the temperature rose to 100°. The patient felt immensely better as a result of the operation. The pain had entirely gone. By March 7th no dressing was needed and he was on full diet with tonics. On the 24th he got up on the couch and gradually walked about with assistance. On the 31st he was discharged, but was advised to use crutches for a little time. Then the patient was entirely free from pain, stouter, and looked and felt better. Figs. 1 and 2 show very well the condition before and after the operation.

Remarks by MR. BROOK.—Gluteal aneurysm is very rare, but the interest of this case is further enhanced by the presence of the fractured ilium, produced, of course, by the same blow which ruptured the artery. The absence of repair was remarkable and the appearance and impression it gave to the touch were those of a fracture of a few hours. This could only be accounted for by the continual swirl of the blood at very high pressure over the fractured surfaces. No doubt union had taken place by buttress formation on the inner surface of the bone. Apart from rest and dietary the choice of treatment of gluteal aneurysm lies between: (1) the introduction of needles with or without electrolysis; (2) ligature of the internal iliac artery; (3) the operation of Antyllus; and (4) the operation of Antyllus aided by intra-abdominal compression of the internal iliac. It was decided to give treatment by rest, dietary, and iodide of potassium a trial because the tumour was very firm, incompressible, and non-fluctuant and the pulsation not marked, giving the impression that the cavity was nearly obliterated by clot. From the disappearance of the pulsation and bruit it looked at first as though this would be successful. But although the circulation through the distal part of the artery evidently became arrested the subsequent increase in size and the altered appearance of the skin showed that the latter would undoubtedly slough unless further measures were promptly adopted. The danger of setting up suppuration in the sac by the use of needles seemed likely to be accentuated by the devitalised condition of the skin and subcutaneous tissues and the choice of treatment came to lie between ligature of the internal iliac and the old operation of Antyllus, aided or not by intraperitoneal compression of the artery. The simplicity and safety of the procedure adopted led me to select it and its ease of performance justified my anticipations in this respect. Both Syme and at the beginning of the last century Bell opened up the sac in gluteal aneurysm and successfully tied the artery without the assistance of any compression, but, as Jacobson[1] points out, there is always a risk of fatal hæmorrhage from the artery having retracted into the pelvis. The limited suppuration which occurred was due to the impossibility of obliterating the cavity after operation by means of compressing its walls, being largely composed of muscle tissue rigid with infiltration. The wound was soundly healed before the patient left the hospital, neither of the celluloid ligatures having appeared. The credit of having been the first to devise and to perform this operation belongs to my friend Mr. W. H. Battle who in 1898 published a case[2] which he successfully treated in this way at the Royal Free Hospital. So far as I know this is the only case on record. I take this opportunity of acknowledging my indebtedness to my colleague, Mr. J. K. Couch, who kindly assisted by compressing the artery, and also to Mr. F. P. Edwards, assistant house surgeon, who, in the temporary absence of Dr. Muir, assisted at the operation and for the first few days helped in the conduct of the after-treatment.

FIG. 2.



Condition after the operation.

THE RELATION OF THE THYMUS GLAND TO MARASMUS.[3]

BY JOHN RUHRÄH, M.D.,
CLINICAL PROFESSOR OF PEDIATRICS, COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE, MARYLAND, U.S.A.

THE pathology of infant life has been to a certain extent a very much neglected field and I feel positive that a rich harvest awaits the workers who will be painstaking enough to study both in the ward and in the dead-house. In most places the necropsies on infants are hastily done and the record frequently made in the report, "Nothing abnormal noted." As a matter of actual fact, regarding many organs during infancy there are few who know normal from abnormal or who can tell from a macroscopical examination what the microscope will reveal. There are, I am sure, clinical entities with well-marked lesions which are waiting to be described. As is known, one frequently sees an infant sicken and die without diagnosis during life and no adequate explanation after the necropsy has been made. Many of these cases come under the head of marasmus and it was with the intention of trying to throw some light on this interesting condition that especial care was taken with our necropsies on infants. The following brief report, which I hope will stimulate others to undertake similar studies, is based on about 85 necropsies. The first 23 have been carefully tabulated by my colleagues, Dr. Stokes and Dr. Rohrer and myself, and while the remainder have not been tabulated they have been studied and the conclusions reached from the first 23 remain unchanged.

It is a curious fact that the most characteristic lesion of marasmus, excepting the wasting of fat and muscles, while known for many years, is not mentioned in any of the text-books on the diseases of children. This lesion is a wasting of the thymus gland which will be described later. Parrot, in 1877, called attention to the disease which he called athrepsia, the so-called wasting disease of infants, known also as marasmus, simple atrophy, and atrophia primitiva infantum. The term inanition, also used, should be restricted to those acute cases of starvation which have a typical course and characteristic symptoms. There are two conditions in which we see atrophy in infants—the primary cases, where the cause is as yet unknown, and the secondary cases following definite pathological conditions. The dividing line cannot at this time be definitely drawn. All cases occurring in the course of the easily recognised diseases may at once be placed in the group of secondary cases—those following tuberculosis or syphilis, for example. Clinically most cases are seen in infants which have had improper food and care. Some authors would also place these in the list of secondary cases. They would place under the head of primary atrophies only those where the assimilation was at fault or, in other words, those cases receiving proper care and a physiologically correct diet. This is, we think, a division practically useless; and for the present until we have definite information the cases should be divided, on a pathological basis, into those were there are lesions of definite diseases and those where there are no special and constant lesions except the wasting of the muscles and the body fat, and, as we shall see, of the thymus gland as well.

---

[1] Jacobson and Stewart: Operative Surgery, fourth edition, vol. ii., p. 26.

[2] Brit. Med. Jour., 1898, vol. ii., p. 1415.

[3] A paper read before the British Medical Association at Swansea on July 29th, 1903.

The more important contributions to the pathology of the condition are as follows. Baginsky thought that the disease was due to an atrophy of the mucous membrane of the intestine and that it was owing to this condition that absorption was intefered with and hence the atrophy. He estimated the amount of nitrogen ingested and that excreted and found that the amount of nitrogen absorbed in these atrophic infants was 50 per cent. below the normal. Similar anatomical studies were made by Fenwick. Since that time many investigators have disproved this anatomical statement. In the majority of cases the changes observed were due to the stretching of the intestinal wall by distension with intestinal gases and also partly in many cases due to post-mortem changes. Bendix found that Baginsky's estimate concerning the nitrogen was exaggerated; and Heubner and Rubner, as the result of experiments carried out in a somewhat different manner, formulated the idea that there was sufficient food taken and absorbed but that the trouble was due to the auto-intoxication from the decomposition of food in the intestinal tract. Czerny is of the same opinion but holds that the intoxication is of an acid nature. The French writers regard the condition as an infection or an intoxication due to a subacute or a chronic infection of the intestinal tract. Marfan has more recently stated that the condition is due to a lack of or a lessened activity of the nutritive ferments, this in turn being due to the intestinal infection. We may safely assert, I think, that the trouble is not due to the amount of food ingested or to the [illegible] t, but that it is due [illegible] terial in the body. [illegible] anything to do with assimilation or not we are not prepared to say, but it is certain that the thymus gland bears a direct relation to the state of the nutrition of the body. It increases in size until about the second year, when it remains stationary, growing relatively smaller when compared to the size of the growing body. At puberty, when the body growth is largely over, it begins to atrophy and at about 25 years of age, when the body has attained its full growth, it is gradually replaced by fatty and connective tissue. Herard, at a subsequent date Friedleben, and more recently Mettenheimer, have pointed out the relation of the size of the thymus to the state of nutrition of the body. Of this this there can be no doubt, as it rests on a firm basis of trustworthy observation.

The function of the thymus is as yet unknown. The gland weighs about 12 grammes at birth. Histologically it consists of a connective tissue framework holding up a parenchyma consisting of a cortex and medulla which are similar in structure, but the cortex contains normally many more cells than the medulla. The parenchyma consists of a network of endothelial cells resembling the reticular spaces of the lymphatic structures. This space is filled with lymphoid cells and also with a few neutrophilic and eosinophilic leucocytes and with a few giant cells. Here and there in the structure are little islands of epithelial cells with a peculiar concentric arrangement not unlike that found in the concentric bodies of an epithelium. These are the so-called Hassall bodies or corpuscles. They are the remains of the epithelium which forms the principal part of the thymus gland during embryological development.

Our studies cover 18 cases of marasmus. The average weight of the gland was 2·2 grammes. Excepting the terminal infection the atrophy of the thymus was the only *lesion found in any of the necropsies.* The changes *in the* gland consisted in a great atrophy. Histologically the fibrous capsule of the gland is thicker than normal and the trabeculæ are also greatly thickened and the increased interlobular tissue frequently cuts the lobules up into irregular masses. Sometimes there is more fibrous tissue present than there is lymphoid structure. In well-marked cases there is more reticular tissue present than lymphocytes and leucocytes. In most of the cases there was an increase in size and a hyaline degeneration of the Hassall bodies The state of the nutrition of infants may be estimated by a microscopical examination of the thymus. In those of [illegible] thymus is unaltered and [illegible] medulla is *plainly* [illegible] and medulla are not easily distinguished, while in severe atrophies the changes mentioned above are plainly seen. In secondary atrophy the change is one of degree and we found in our cases the average weight of the thymus to be 3·41 grammes. We tried the administration of the thymus gland tablets in cases of marasmus and as far as could be determined there were no changes produced by the use of the gland in the dried form. We arrived at the following conclusions: (1) atrophy of the thymus gland is always found in cases of infantile atrophy; (2) the condition of the thymus is an index of the general nutrition of the infant; and (3) the state of the nutrition in infants may be estimated by a microscopic examination of the thymus at the necropsy.

A SERIES OF CASES OF PERFORATING GASTRIC AND DUODENAL ULCERS.

BY B. G. A. MOYNIHAN, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE LEEDS GENERAL INFIRMARY.

THE perforation of a gastric or duodenal ulcer is one of the most serious and most overwhelming catastrophes that can befall a human being. The onset of the symptoms is sudden, the course is rapid, and unless surgical measures are adopted early the disease hastens to a fatal ending in almost every instance. Perforation of the stomach is usually described as being of two varieties, acute and chronic, but there is an intermediate class of cases, not embraced by either of these terms, which is best described as subacute. In acute per*foration the ulcer gives way suddenly and completely.* A larger or smaller hole results and through this the stomach contents are free to escape at once into the general cavity of the peritoneum. In subacute perforation the ulcer probably gives way almost as quickly as in the acute form, but owing to the small size of the ulcer, or *to the emptiness of* the stomach, or to the instant plugging of the opening by an omental flap or tag, or to the speedy formation of lymph which forms, as it were, a cork or lid for the ulcer, the escape of fluid from the stomach is small in quantity and the damage inflicted thereby is less considerable. The symptoms at their onset may be as grave as those in acute perforation, but on opening the abdomen the ulcer may be seen to be plugged and no further escape of fluid is occurring. In the subacute form of perforation I have found that there is always a complaint of greater discomfort for several days preceding the rupture. Vague general or localised pains have been felt in the abdomen, or a sharp spasm or "stitch" when the patient turned quickly or attempted to laugh. One girl, a housemaid, felt the pain down her left side especially when reaching up to her work; another said that it hurt *her to bend as her side felt stiff.* These premonitory symptoms are important and if recognised they should enable us to take measures to prevent the occurrence of perforation. They doubtless have their origin in a localised peritonitis and the stiffness is due to the unconscious protection of an inflamed area by a muscular splint. In chronic perforation the ulcer has slowly eaten its way through the coats of the stomach and a protective peritonitis has had time to develop at the base. The escape of stomach contents is, *therefore, merely local; barriers of lymph con*fine the fluid to a restricted area and a perigastric abscess may form. A chronic perforation occurs more frequently on the posterior surface of the stomach and the epigastric abscess occasioned thereby is recognised as "subphrenic." The acute and subacute forms of perforating ulcer are more common on the anterior surface.

There can be no doubt that recovery by medicinal treatment alone is possible both in the acute and in the subacute forms of perforation. I have had two cases under my care *in which a diagnosis of* perforation had been made by competent medical men. In both an operation was impossible, as no skilled help was available until the urgency of the symptoms seemed to have passed off. When I operated many months later the evidences of peritonitis completely surrounding the stomach were undeniable. Though patients may recover their recovery cannot be urged as a reason for delay in withholding surgical help in all cases. For the possibility of spontaneous recovery, though not denied, is yet so remote as to make it imperative to adopt operative treatment at the earliest possible moment. The risk of operation is definite, the hazard of delay is immeasurable. There are times when the diagnosis may be difficult. If morphine has been administered to still the intolerable pain the patient's condition becomes placid and comfortable. It may be almost impossible then to recognise the extreme urgency of the case. In such circumstances I have, however, placed great reliance upon a continued hardness and rigidity of the abdominal muscles. Even when the patient expresses herself as free from pain, when the aspect has become natural, and when the pulse has returned to the normal, the abdominal rigidity remains. In Case 9, that of a girl, aged 17 years, upon whom I operated for a perforated duodenal ulcer, the medical man who sent her to the infirmary had diagnosed a perforated gastric ulcer and had told the patient and her parents that immediate operation alone could save her life. Having obtained consent to operation he despatched the girl to the infirmary and gave a hypodermic injection of a quarter of a grain of morphine to lessen the distress of the journey. When I saw her shortly after her arrival she looked in perfect health, she had no suffering, and her pulse and respirations were normal. The abdomen, though not distended, was absolutely rigid and immobile and I did not hesitate to operate at once. In any uncertain case I should incline to operation rather than to indefinite postponement to solve the diagnosis.

I have seen a difficulty in diagnosis arise and I know of three cases in which negative exploration had been performed when the patient was a woman at the commencement of a menstrual period. From some unexplained and indeterminate cause a sharp attack of abdominal pain, followed by vomiting, distension, prostration, and collapse, had occurred in all and had caused a confusion in the diagnosis. In the case under my own observation a history of previous similar, though less severe, attacks at the menstrual epoch and the absence of any marked abdominal stiffness or tenderness, though the abdomen was obviously distended, enabled me to negative the question of perforating ulcer of the stomach. A difficulty may also arise in the diagnosis of a perforated duodenal ulcer. In a paper published by me[1] I drew attention to the fact that in 18 cases out of a total of 49 recorded a diagnosis of appendicitis had been made and an operation had been undertaken for that condition. The symptoms and signs in all these instances had been limited to the right iliac region or had been more accentuated there. This is due to the fact that, owing to a hillock in the transverse mesocolon under the pyloric end of the stomach, extravasated fluids are directed downwards and to the right into the right renal pouch and thence to the right iliac fossa.

The operation for perforated ulcer should be conducted speedily and all means adopted to save the patient from shock. The excision of the ulcer is not necessary. My practice is to close the ulcer at once by a single catgut suture taken through from side to side so as to prevent any further leakage during the application of the sutures. I apply two continuous sutures of Pagenstecher thread which infold the ulcer and a portion of healthy stomach around it. After the stitches are completed the cleansing of the peritoneum is begun. If there is much soiling a free flushing of the cavity is necessary; if the operation is done within ten or 12 hours a gentle wiping of the surrounding area with wet swabs will suffice. Drainage, as a rule, is not necessary except in the late cases. When adopted it should be free, a split tube and a gauze wick being placed in the original incision and in a second suprapubic opening. I have preferred the enlarging of the original incision and free flushing through that to the method of multiple incisions advocated by Finney. One point I think requires emphasis; it is the multiplicity of perforating ulcers. As soon as the ulcer first discovered is sutured a rapid survey of the whole stomach is desirable in order that any other ulcer may be laid bare. An examination of a large number of recorded cases has shown that double perforation occurs in no less than 20 per cent. In the majority the second ulcer was on the posterior surface at a point exactly apposed to the first. In duodenal ulceration the perforation may be very large; the ulcer seems to have fallen out bodily. When the gap is stitched up a narrowing of the calibre of the duodenum results and it may therefore be necessary to give an alternative route from the stomach by performing gastro-enterostomy.

The following is my record of cases; there are 12 cases—six recoveries and six deaths.

CASE 1.—A woman, aged 39 years, was admitted on April 30th, 1897, with a history of acute onset of severe abdominal pain, chiefly in the epigastric region. There was faintness followed in about half an hour by vomiting; there was no hæmatemesis. The abdomen gradually became distended and the pulse gradually became quicker and feebler. The abdomen was opened and a very small gastric ulcer near the lesser curvature was found to have perforated. There was free effusion and some curdled milk was seen in the peritoneum. Suture of the ulcer, lavage, and drainage were performed. Recovery ensued.

CASE 2.—The patient, a woman, aged 27 years, was seen on May 22nd, 1897. During the previous year she was treated by Dr. W. E. Bennett for gastric ulcer. Since then she had constantly had dyspepsia, pain in the back and epigastrium, and occasional vomiting, but not recently, of blood. On May 22nd, at 2.30 A.M., she was suddenly roused from sleep by intense epigastric pain, she felt faint, and vomited. The collapse continued and soon distension and tenderness occurred; the vomiting was persistent. The abdomen was generally distended, the upper part especially; the pulse was very tense and only just perceptible; she had cold, clammy hands and livid skin. Operation was performed at 11.25 P.M. There was a large perforation half inch in diameter just below the lesser curvature nearer the cardia. Death ensued.

CASE 3.—A woman, aged 20 years, was seen on Nov. 16th, 1898. She had been under the care of Dr. T. Johnstone some months previously for indigestion. With dieting, &c., the symptoms abated. She had had no discomfort recently. On the 18th, at 5.30 P.M., while at tea, she had sudden pain, overwhelming, localised beneath the ribs on the left side, "as though a knife were run in." The abdomen gradually became distended. The patient remained collapsed for several hours but improved after morphine. There was no liver dulness. The tenderness was over the appendix region chiefly. Operation was performed on Nov. 20th at 12 noon. There was a large ulcer, easily admitting the middle finger, about three inches from the cardia on the anterior surface. There were general peritonitis and a large collection of thick turbid fluid and lymph. Death occurred in 23½ hours.

CASE 4.—The patient, a man, aged 44 years, was seen on April 26th, 1900. Symptoms had been present for 18 months; the chief of them was pain two, three, or four hours after food. Blood had been observed when the patient vomited; vomiting was frequent but irregular. There was no melæna. On the 25th, while in the infirmary, the man became suddenly worse; pain came on acutely in the whole abdomen. Distension and rigidity were soon observed. Collapse was pronounced. The respirations were 28 and the pulse was 128. A diagnosis of perforating ulcer was made and the abdomen was opened. The ulcer was found at the beginning or the second part of the duodenum; its diameter was about three-quarters of an inch. After stitching the ulcer up the gut seemed narrowed to at least half its diameter. A gastro-enterostomy, with the aid of a Murphy's button, was therefore performed. The patient never rallied from his collapse and death ensued.

CASE 5.—The patient, a woman, aged 28 years, was seen on April 12th, 1901. She had had symptoms of indigestion for eight years. On April 11th she was suddenly seized with acute abdominal pain about three hours after breakfast. On admission to the infirmary she was found to be in very acute pain, the abdomen, especially in the upper half, being much distended and very rigid. The epigastric region was excessively tender. An ulcer equal in size to the end of a lead-pencil was found near the lesser curvature towards the cardia. The stitches held imperfectly until taken very wide of the ulcer. To give security an omental flap was stitched over the ulcer. The early course was satisfactory, but later the temperature ran up and a subphrenic abscess and multiple suppuration of the abdomen resulted and the patient died on May 7th.

CASE 6.—The patient, a man, aged 23 years, was seen on May 24th, 1901. He had had symptoms of gastric ulcer for several months. He was a policeman and had recently been on night duty; frequently he had vomited during the night. On the morning of May 23rd he had a sudden acute attack of pain and vomiting when going on duty. He returned to bed, felt ill and cold all day, and at night first sent for a medical man. The abdomen was then distended, rigid, and tender; the pulse was 124, thin, and feeble. An ulcer on the anterior surface near the pylorus had perforated. There were masses of lymph between the liver and the stomach. Fluid was found everywhere in the peritoneum. The ulcer was of about the size of a sixpence. The patient died

CASE 7.—A man, aged 25 years, was seen on June 18th, 1901. The patient, a sturdy, robust labourer, stated that for about four weeks before admission he had suffered from indigestion and vomiting. On June 18th, while climbing a ladder, he was suddenly seized with intense abdominal pain. He was seen at once by a medical man who happened to be near and sent to the infirmary. He was then profoundly collapsed, his breathing was quick and short, his pulse was 128, and the abdomen was rigid and unyielding. A diagnosis of perforated ulcer was made. A perforation equal in diameter to a No. 8 or No. 9 catheter was found in the duodenum one inch from the pylorus. The ulcer was stitched and the abdomen was cleansed and drained. Recovery ensued.

---

[1] THE LANCET, Dec. 14th, 1901, p. 1656.

CASE 8.—The patient, a female, aged 24 years, was seen on March 13th, 1902. She had been married eight weeks previously. She had suffered slightly before that from indigestion but never severely. 36 hours before operation she was suddenly seized with acute intolerable pain underneath the left costal margin. There was no vomiting but faintness and collapse were pronounced. Gradually the abdomen began to distend and the pulse to fail. On examination the abdomen was found to be distended uniformly and was everywhere tender. In the left upper quadrant, beneath the left rectus, there was a specially tender area. An ulcer near the cardia had perforated. The edges for at least an inch round were solid and hard and the stitches cut through when tightly tied. An area of stomach was infolded and an omental flap was stitched like a lid over the line of suture. There were large masses of thick lymph for a few inches round the ulcer. Recovery ensued.

CASE 9.—A [illegible] ril 20th, 1902. For seve [illegible] stion and epigastric pain, [illegible] her to a medical man. On April 19th, at 9 P.M., she had a sudden attack of acute epigastric pain. Morphine was given. When seen at 7 A.M. the abdomen was very rigid and rather tender, especially over the gall-bladder. The patient vomited once. The pulse was 112. There was very shallow respiration. An ulcer which had perforated was found on the anterior surface of the duodenum about three-quarters of an inch from the pylorus. There was some fluid above the stomach. The ulcer was closed by suture and the peritoneum was cleansed by wiping with swabs wet with sterile salt solution. There were no lavage and no drainage. The patient recovered.

CASE 10.—A woman, aged 20 years, was seen on Oct. 11th, 1902. In March, 1901, she had a very severe attack of hematemesis and afterwards symptoms of indigestion, but never severe. She remained anæmic for several months. In November, 1901, she had a second attack of hematemesis; she had had symptoms of indigestion since up to three months ago. Latterly she had been quite well, better than for years, and had suffered no discomfort from food. On Oct. 10th at 5 P.M. she had her tea; at 9 P.M. she had some broth; and at 11 P.M., while undressing, she had a sudden attack of pain under the ribs on the left side, "catching her breath." She was coiled up in bed groaning with pain and was slightly collapsed up to 2 P.M., when morphine was given. She had been comfortable since. When seen at 3 P.M. the abdomen was tight but not distended, moving very little; it was tender to the left of the umbilicus, especially just beneath the costal margin. The pulse was 122. There was no vomiting. Perforation was diagnosed on an almost empty stomach. A perforation was found close to the lesser curvature on the anterior surface equal in size to a No. 10 catheter. There was an indurated area around this equal in size to at least a florin. A single stitch was put through the ulcer to close it and then the ulcer was buried by a double continuous suture. A flap of omentum was turned over like a lid. There were many masses of lymph between the stomach and the liver and there was free effusion of turbid fluid into the peritoneum; this was wiped with wet swabs and then dried. The patient died.

CASE 11.—The patient, a girl, aged 18 years, was seen on Nov. 8th, 1902. For the last few weeks she had had some slight pain after food just beneath the left costal arch. The pain had been worse when she laughed and when she stretched her left arm upwards. There was a sudden onset of symptoms about 8 P.M. on Nov. 7th—pain, collapse, shallow breathing, &c. The abdomen was intensely rigid and immobile. The perforation was about equal in size to a lead-pencil and was situated near the lesser curvature towards the cardia. There were some flaky adhesions. The ulcer was sutured and an omental flap was turned over it. There was no drainage. The patient recovered.

CASE 12.—A woman, aged 23 years, was seen on March 5th, 1903. She had had indigestion for several months. On March 1st, when in London, she had a sudden attack of pain beneath the left costal margin; she felt faint and prostrate and vomited. She gradually felt better and on the 3rd travelled from London to Bawtry and ate a good luncheon on the journey. The side then felt "stiff" and hurt her if she laughed or turned quickly. On the 4th, after breakfast, she had a sudden extremely severe pain with collapse and vomiting. The abdomen had gradually distended and was now blown out and tympanitic; a fluid wave was easily felt. The patient looked very ill. The pulse was 156. Two perforated ulcers were found both on the anterior surface and in the cardiac half of the stomach near the lesser curvature. They were distant about one and a half inches from each other. One opening was of the diameter of a lead-pencil and the other of a knitting-needle. From both fluid gushed out. Both were closed by suture and the stomach was folded over. The omental lid afterwards covered both in. Drainage was effected by a split tube and a gauze wick at the upper part of the incision and through a separate suprapubic incision. Recovery ensued.

Leeds.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Procemium.

EAST LONDON HOSPITAL, SHADWELL.

PROLONGED IMPACTION OF A FOREIGN BODY IN A BRONCHUS.

(Under the care of Dr. J. A. COUTTS.)

FOR the notes of the case we are indebed to Dr. W. P. S. Branson, pathologist.

The patient, a girl, aged three and a half years, was admitted to the East London Hospital, Shadwell, on Feb. 4th last, with a story of failing health for one month ending in slight pain in the right side of the chest, and slight cough for the three days preceding admission. Her bodily nutrition was good, but physical examination revealed complete dulness over the entire base of the right lung, with a sense of great resistance to percussion and a total lack of breath and voice sounds. The apex of the heart could not be defined but the sounds were normal, and examination elsewhere proved entirely negative.

For rather more than a month the child remained in the hospital without further appreciable loss of health and with an almost complete freedom from cough, though the abnormal physical signs persisted without variation and a hectic fever argued the activity of their cause. The presumption of empyema was so strong that during this interval the chest was explored no less than four times in five situations but always without result, except that the needle appeared to penetrate exceedingly dense tissue. In the circumstances Dr. Coutts advised an exploratory incision of the chest wall to eliminate the possible presence of such inspissated pus as often (in pneumococcal empyemata at least) defies the exploring needle, but while permission for [illegible] awaited the patient died. On [illegible] usual moderate health, she made [illegible], within two hours of which she [illegible] ough or any observable respiratory [illegible] seizure.

Necropsy.—Post-mortem examination showed great compensatory emphysema of the left lung and of the upper lobe of the right lung. The middle and lower lobes of the right lung were quite solid and bore superficially under the visceral pleura numbers of abscess cavities of all sizes up to that of a hazel-nut. On section these lobes were very hard to the knife and abounded in fibrous tissue, which fully explained the great resistance encountered by the exploring needle during life, while the central portion of each was occupied by firm, yellow, purulent material intersected by fibrous bands and dilated air-tubes. On opening the trachea and bronchi there was found impacted in the right bronchus, immediately above the main branch to the middle lobe, a pea, still fairly hard, and having for evidence of its site of lodgment a slight cupping and injection of the bronchus at the spot. There was no sign of embolic interference with the vascular supply of the heart, nor anything to account for the suddenness of the end, and all the other organs appeared to be healthy.

Remarks by Dr. BRANSON.—It is a curiously rare thing for foreign bodies of any considerable size to effect the passage of the rima glottidis, considering that in children the mouth is the natural receptacle for all articles of value (according to the contemporary standard) the bulk of which is not prohibitive; and this immunity reflects the good service daily rendered by the mechanical and nervous arrangements of the larynx in preserving the deeper air-passages from invasion.

The entire absence of any such history as may reasonably be looked for when a foreign body suddenly invades the air-passages is a point for remark. Neither before nor after the fatal issue could any account of an asphyxial seizure be extracted from the quarters most likely to be informed. It is known, and can easily be appreciated, that the greater the mobility of a foreign body in an air-tube the more pronounced will be the reflex evidence of its presence. Authorities declare[1] that even the first entrance of such bodies, provided they immediately become fixed, may be unattended by noticeable expulsive efforts and such would appear to have been the case in the present instance. Certainly no class of foreign body seems better fitted to achieve immobility than a pea, granted only that it resists the first attempts at expulsion, for if inhaled in a dry state, or only moderately expanded, a pea would rapidly absorb from its humid surroundings enough moisture to convert it into a most efficient cork. On the other hand, a smooth, spherical object should lend itself to rapid ejection from the site of its first lodgment before time were allowed for swelling. Much, no doubt, depends upon the condition of the underlying air vesicles at the moment of impaction. Should this occur at the beginning of inspiration not only is the indraught relatively great, thus securing a relatively firm impaction, but there is available for the succeeding expulsive efforts little more than the residual air of the vesicular tissues, the inadequacy of the pressure of which can be readily understood. It is probable that all such immediately permanent fixations take place at the beginning of inspiration.

The exact mode of production of septic pneumonia in such a case is difficult to determine, for it is hard to credit that a smooth inert body should, *per se*, set up a spreading inflammation, or that a pea should carry with it any other organisms than those that have constant access to the root of the lung by the air-stream. A likely explanation appears to be that the affected tubes, being hermetically sealed, become channels filled with stagnant mucus in which may multiply at leisure organisms already abundantly present. If this be so the pathology of the condition may find its analogy in some broncho-pneumonias of infants and young children, the passive collapse so common in the latter instance securing the same physical conditions as the active obstruction of the case in point—namely, bronchi converted into culture tubes of a stagnant medium suitable for bacterial growth.

I am indebted to Dr. J. A. Coutts for his kind permission to publish the case.

MEXBOROUGH COTTAGE HOSPITAL.

A CASE OF TRAUMATIC URÆMIA; SUPRAPUBIC CYSTOTOMY; RECOVERY

(Under the care of Mr. B. CROSSFIELD STEVENS.)

ON May 25th, 1903, a lad, aged 16 years, was admitted to the Mexborough Cottage Hospital suffering from a severe contusion of the abdomen the result of being caught between the buffers of two wagons. His pulse on admission was 120—doubtless evidence of shock. He was also unconscious. Neither urine nor flatus could be passed, so the catheter was used and bloody urine was drawn off. Enemata were also administered daily. He remained in this comatose condition and no hopes were entertained of his recovery. On the third day involuntary evacuations of diarrhœal motions set in. By rousing him at intervals he regained consciousness sufficiently to allow him to swallow nourishment and then lapsed into coma again. On the 28th Mr. Stevens saw him in consultation and recognised the condition as one of uræmic poisoning. The face was sallow and pinched, the pulse was quick but good, the respirations were hurried but not of the Cheyne-Stokes variety, the pupils were dilated, and there was frequent vomiting but no elevation of temperature. He was still semi-comatose but would answer when roused and spoken to. On examining the abdomen the hypogastrium was found to be hard and distended and the muscles were rigid. A swelling was palpated reaching as high as the umbilicus. A catheter was passed at once and a few ounces of bloody urine were drawn off and then almost pure blood followed. A rectal examination was negative. Mr. Stevens advised operation as the patient's only chance and this was performed on the same day.

After due antiseptic precautions the bladder was opened above the pubes. The anterior wall was found to be very friable and covered with fibrinous clot. A metal catheter was passed as a guide but could not be made to touch the finger in the bladder owing to intervening clot, so with a finger in the rectum as a guide a way was snipped through by scissors until the catheter could be seen. The bladder was two-thirds full of organised clot which was very adherent. This was with difficulty shelled off by the finger or pulled out by broad-bladed clamp forceps. The trigone of the bladder seemed to be the part most thickly covered by clot and the operation here was something like eradicating a prostate. Having cleared out the bladder as well as possible it was irrigated with two pints of boric lotion with hamamelis. A large rubber tube with a gauze drain by its side was then inserted and the incision was partly closed. The patient stood the operation well and was given a normal saline enema on his return to bed. On the next day the pulse rose to 126. The patient was brighter, no doubt having been relieved by the blood-letting during the operation; the vomiting ceased; and the bowels were opened three times. The amount of urine escaping by the abdominal drain was not altogether satisfactory. From this date till June 2nd the condition of the patient was extremely critical though his recovery was never despaired of. The pulse kept up to 120. Strychnine was given every four hours and the bowels were much relaxed (fortunately). The restlessness and delirium were extreme and chloral had to be given liberally. A diuretic mixture and salol were also prescribed. On the 4th the urine had a strong ammoniacal odour and the abdominal wound did not look very healthy, so the bladder was irrigated per urethram in addition to the abdominal route and clot and débris were removed. Potassium permanganate and chlorinated soda were the disinfectants used and fomentations of boric acid and chlorinated soda were applied to the wound. A smaller and shorter tube was inserted as a drain. The urine was syphoned into a vessel by the bed, while cellulose wadding absorbed what escaped on to the abdomen. On the 7th, as there was more urine passing and the pulse fell below 100, the strychnine was discontinued and also the soporifics. On the 8th the temperature rose for the first time to 101·6° and falling by lysis reached the normal on the 12th. On the 10th the bladder tube was removed but the bladder was irrigated twice daily per urethram. On the 13th there was a good deal of pain and the temperature again rose to 101·8° when there was passed through the abdominal wound a large cast of part of the bladder quite three inches in diameter with some phosphates embedded in, sloughy and foul. This set up fresh bleeding which, however, was not alarming. After this contretemps convalescence was uninterrupted. A rubber catheter was tied in, irrigation was continued daily, and the abdominal wound was allowed to heal. On July 14th the catheter was left out and on the 23rd the patient was discharged cured.

Remarks by Mr. STEVENS.—This somewhat rare and interesting case is recorded to show that when the bladder fills with blood which cannot be voided easily this blood by clotting and organising can produce back-pressure effects on the kidneys and cause uræmic poisoning. From what I saw at the operation the chain of events was: (1) trauma (contusion); (2) an organised effusion of blood into the bladder; (3) retention of urine; (4) ureteral and urethral obstruction; (5) back-pressure effects on the kidneys; and (6) uræmic coma. If the bladder had been full at the time of the accident we should probably have had a ruptured viscus to deal with instead of a contused and bleeding one. The raised temperature on the two occasions was inexplicable until the cast appeared and this, I think, was the slough produced by the initial contusion.

---

[1] Dr. Goodhart: Diseases of Children, sixth edition, p. 288.

Reviews and Notices of Books.

Pregnancy, Labour, and Childbed with Ovarian Tumour. By R. G. McKerron, M.A., M.D. Aberd. London: Rebman, Limited. 1903. Crown 8vo. Pp. 281. Price 7s. 6d. net.

THE importance of the complication of pregnancy with an ovarian tumour can hardly be over-estimated. It occurs in the proportion of about 1 in every 2500 cases and is therefore a by no means infrequent cause of abnormalities in connexion with childbirth. Dr. McKerron's valuable paper on the Obstruction of Labour by Ovarian Tumours in the Pelvis[1] is well known to all those interested in this subject. The present book is the outcome of the work done by him in the preparation of that paper. It is divided into three parts in which the complications produced by ovarian tumours in pregnancy, labour, and the puerperium are all considered. The author has collected a very large number of cases which he has arranged in tables.

The most important part of the book is that dealing with the treatment of these conditions. In considering the question of ovarian tumours in pregnancy immediate ovariotomy is recommended. The only possible exception to this rule is the case of a tumour discovered for the first time in the latter months of pregnancy and densely adherent. In these circumstances the operation may be postponed in the interests of the child until the end of gestation. The great importance of early operation is to avoid the occurrence of complications which add considerably to the danger. The author agrees with Dsirne's conclusions that if the operation is one of election equally good results may be anticipated for the mother at any period of pregnancy. Dermoid tumours are best removed entire. If the uterus be injured during the operation the best treatment will depend upon whether the ovisac is involved in the injury or not. If it is not, suture of the wound in the uterus is usually sufficient; if it is, Cæsarean section should be performed. Tapping the cyst should be reserved for those cases where the symptoms of pressure are urgent and operation is impossible or refused. Where the tumour is recognised for the first time during labour the treatment must obviously depend upon the question as to whether it is situated in the abdomen or the pelvis. In the former case the treatment is simple, the labour must be carefully watched, help given if necessary, and the tumour removed at the earliest opportunity afterwards. Pelvic tumours, however, form a much more formidable complication. It is only quite recently that the correct treatment of such cases can be said to have been decided upon. Every surgeon will agree that the plan of treatment advocated by Dr. McKerron is the safest and the best whenever it is possible. He advises immediate ovariotomy preferably by the abdominal route. In the cases where such treatment is not possible an attempt may be made to push up the tumour out of the pelvis. When neither of these modes of treatment is available then other measures must be adopted without delay. The tumour should be aspirated or incised. If it is solid or semi-solid then it must be removed either by the abdomen or the vagina. Failing this, Cæsarean section seems to be less dangerous than an attempt to drag the child past the tumour with forceps, or after performing version. In the removal of the tumour by the abdomen Cæsarean section should rarely be necessary. Up to the present time when an ovarian cyst has been found to be present in the abdomen after delivery the usual course has been to postpone its removal until some weeks have elapsed. Dr. McKerron shows good reasons for abandoning such delay. He strongly urges that all ovarian cysts should be removed, even in the puerperium, without any delay at all and brings forward several arguments in favour of such a course. He points out that under expectant treatment complications may occur in one out of every two cases, while there is no evidence in favour of the belief that the puerperal period is a specially dangerous one in which to operate.

A perusal of this most interesting work cannot fail to lead us to the conclusion that the best treatment for an ovarian tumour, whether occurring in connexion with pregnancy, labour or childbed, may be summed up in the advice to perform "immediate ovariotomy." For the illustrative cases and the facts upon which the author bases his conclusion we must refer our readers to the book itself. It is a work of much value and we have little doubt but that the author's arguments, founded as they are upon a very careful review of the whole subject, will be accepted by the great majority of obstetricians.

The Natural and Artificial Methods of Feeding Infants and Young Children. By EDMUND CAUTLEY, M.D. Cantab., F.R.C.P. Lond. Second edition. London: J. and A. Churchill. 1903 Pp. 418. Price 7s. 6d.

THE second edition of Dr. Edmund Cautley's little book on the feeding of infants and children impresses us most favourably. It is clearly written and covers the entire ground of feeding under conditions of health; feeding under conditions of ill-health is, perhaps, wisely omitted, since thereby it permits of the fuller consideration of the general principles of infant dietetics without unduly increasing the size of the volume. There is some want of appreciation of the relative importance of certain questions which constitute the subject matter of several chapters. For instance, two of the chapters—namely, Chapters XII. and XIII.—are respectively concerned with the micro-organisms present in milk and with the curdling properties of milk under different conditions. On these subjects Dr. Cautley is entitled to speak with authority but from a practical point of view their importance does not warrant the disproportionate space which has been devoted to them.

Again, we are inclined to think that in many ways practical considerations of convenience have been sacrificed for academic and logical continuity of argument, and we believe that the majority of readers who will refer to this book for assistance will agree with us that the advice which Dr. Cautley has to offer would be more readily assimilable had a little more precision, and we would even add a little more dogma, been noticeable in his teaching. If, for instance, we imagine ourselves in the position of a young and inexperienced practitioner appealing to Dr. Cautley for assistance in private practice, we should probably read with some degree of impatience the first portion of the book, consisting of 186 pages which deal almost exclusively with the general principles of feeding and with the chemistry and physiology of milk. Excellently as this part of the book is written from a scientific point of view it covers ground which should have been traversed by every student at an early period of his professional education. When, however, we come to Chapter XI. we reach a part which deals with the practical application of the principles and a lack of precision appears. Twelve alternative methods of feeding are scheduled and the reader is left to decide for himself what method would be best for him to adopt. "Reference to these various mixtures will," in the words of the text,

---

[1] Transactions of the Obstetrical Society of London, 1897, vol. xxxix.

"enable anyone with a moderate degree of intelligence to devise a food substitute for the particular child." We cannot help thinking that the average reader is credited with more intelligence than he usually possesses. And, further, he must be a man of infinite patience if he is to refer to Part I. in the case of each one of these 12 methods to see which is most likely to suit the particular case with which he has to deal. Let it be granted, however, that the reader is a man of determination and that he has made up his mind in favour of one of the methods. In such a case he will proceed to the next section and learn how to prepare each feeding; in this section an attempt has been made to find a sort of "common factor" for all the 12 methods, but inasmuch as all, or most of them, necessitate special precautions in preparing the individual foods, the result, as far as plainness is concerned, is not all that could be wished. The next sections describe the kind of feeding bottle to be used and the temperature at which the food is to be given. These steps follow naturally on those which have been just described, but at this point there comes an interposition of three parts of a chapter on abstract considerations of micro-organisms in milk before we arrive at the important knowledge of how to sterilise the food, which we are supposed to have prepared in the last chapter and to have put into bottle ready for the infant to take. This want of arrangement clearly detracts from the value of Dr. Cautley's book as a guide. In many ways it might have been more advantageous if the author had described in detail and in consecutive order all the steps which it is necessary to take in order to carry on any one method; indeed, he might have been at greater pains to describe accurately the method which he uses himself. This method consists in combining certain proportions of cream containing 20 per cent. of fat with milk, water, and sugar; but although the value and accuracy of the method depend absolutely on the use of a cream of the required percentage, it is not made clear how cream of this strength is to be secured.

Dr. Cautley considers (p. 198) that it is theoretically unsound to increase after the second month of life the strength of diluted cow's milk with the increasing age of the child, for the reason that mother's milk does not become richer as lactation advances. This argument does not appear to us to be incontrovertible. Dr. Chapin in his excellent book on infant feeding has pointed out the great advantage of rearing hand-fed infants on a full percentage of proteid, since sound tissues cannot develop if the infant is fed on any alternative element of food. Now the majority of artificially fed infants cannot digest at the second month of life a percentage of proteid (such as is contained in cow's milk) which can be regarded as adequate, in view of the fact that, as compared with the proteid in human milk, it is but slowly digested and only indifferently assimilated. Indeed, it is only possible to increase the proteid elements in diluted cow's milk by slow and cautious degrees, and the process of gradual strengthening must be continued long after the second month. For these reasons we do not regard Dr. Cautley's principle of adopting a single standard of strength for milk after the second month of life as free from objection.

We have discussed at considerable length many of the points which have suggested themselves to us in reading Dr. Cautley's book, and because our remarks have been critical we must not be supposed to be blind to its merits. It is a book which is certainly worth reading and the information contained in it is both scientifically sound and practical. The defects in the arrangement of certain parts do not deprive the work of its genuine value.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science by Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. Vol. XXI., Supplement. London: Sampson Low, Marston, and Co., Limited. 1903. Pp. 845.

ALTHOUGH but two years have elapsed since the completion of this encyclopædia the advances in certain lines of medical work have been so marked as to justify the preparation of a supplementary volume. There are no less than 40 contributors to this volume, so that it is impossible in the space at our disposal to refer to all the articles. The majority of the communications are by authors who have contributed to the other volumes comprising this publication and who have taken advantage of the invitation of the editor to bring the subjects for which they were responsible fully up to date. Professor von Noorden, for example, records the advances which have been made in the pathology and treatment of diabetes, and the late Dr. T. J. Maclagan reiterates his opinion that the poison of rheumatic fever is a minute organism which enters the system from without, although he admits that the microbe has not yet been definitely recognised. Mr. John B. Walker (New York) makes some interesting observations on the treatment of hernia, especially in regard to the operative methods for the radical cure of the affection. Dr. A. E. Sansom contributes a short article on Diseases of the Aorta in which he emphasises the fact which has not yet received the recognition which its importance deserves—viz., that atheroma is the degenerative result of all lesions of the aorta, whether acute or chronic.

The discovery of the Roentgen rays was made while the earlier volumes of the Encyclopædia were in course of publication and Dr. Carl Beck, professor of surgery in the New York Post-graduate Medical School and Hospital, writes a comprehensive article on the diagnostic and therapeutic applications of this form of radio-activity. A good description is given of the apparatus employed in the clinical application of the x rays and the methods of examination are likewise detailed. Dr. Beck pays due attention to the great usefulness of the rays in surgery. He points out that fractures and dislocations are shown as they really are in life. Even the most skilful experts in fractures are unable to deny that there are many injuries to bones the character of which could formerly not be recognised on account of the swelling of the area involved or of the obscurity of the symptoms. In such cases examination with the fluoroscope may furnish precise evidence. The remarks on the use of the rays as an aid to diagnosis in disease of the thoracic organs are also interesting. The author speaks very highly of the information that is gained by fluoroscopy and skiagraphy, maintaining that pneumonic consolidation, tuberculous foci, cavities, abscesses, tumours, bronchiectatic conditions, emphysema, and pleuritic effusions can all be recognised by these methods. We cannot go so far as this, but as an auxiliary method of examination of the chest the rays may prove of some value. For the present, at any rate, we cannot accept their evidence when contradicting the conclusions arrived at by the ordinary methods now in use for detecting thoracic disease, and further their employment requires such special apparatus that their general adoption is almost impossible.

The demonstration by medical officers of the United States Army in Havana of the agency of the mosquito in the transmission of yellow fever, and the practical application of this demonstration to the suppression of the endemic forms of the disease in Cuba have necessitated a restatement of the accepted teachings concerning the disease. This task has been undertaken by Dr. George M. Sternberg of Washington, a retired surgeon-general of the United States Army.

He gives an interesting account of the researches which have been made into the etiology of yellow fever, especially the experiments of the late Major Walter Reed (surgeon, U.S.A.) and his associates. As a result of their investigations they came to the conclusion (1) that the bacillus icteroides (Sanarelli) stands in no causative relation to yellow fever, but when present should be considered as a secondary invader; and (2) that the mosquito serves as the intermediate host for the parasite of yellow fever. The inference drawn was that the fever may be transmitted by mosquitoes of the genus culex, but that in order to convey the infection to a non-immune individual the insect must be kept for 12 days or longer after it has filled itself with blood from a yellow fever patient in the earlier stages of the disease—in other words, that a certain period of incubation is required in the body of the insect before the germ reaches its salivary glands and consequently before it is able to inoculate an individual with the germs of yellow fever.

Another contribution worthy of special notice is that on Bacillary Dysentery by Dr. K. Shiga of Tokio. He gives a good account of the bacteriology of the disease.

Mr. W. Roger Williams is responsible for a review of the work which has more recently been accomplished as to the cause of cancer. He criticises the investigations which have been made in regard to the parasitic origin of the disease and its suggested infectivity. He considers that the evidence as to the existence of a specific cancer microbe has broken down and also that there is no proof that the disease can be spread by infection.

Cellular Toxins, or the Chemical Factors in the Causation of Disease. By VICTOR C. VAUGHAN, M.D., LL.D., Professor of Hygiene and Physiological Chemistry and Director of the Hygienic Laboratory in the University of Michigan; and FREDERICK S. NOVY, M.D., Sc.D., Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. Fourth edition, revised and enlarged. London: Rebman, Limited. 1903. Pp. vi. + 495. Price 14*s.* net.

THE paucity of works dealing at any length with the chemical products of bacteria as contrasted with the multitude of text-books of bacteriology devoted to the study of the morphology and pathological relations of micro-organisms is very remarkable. Such a volume as that at present under consideration is therefore very welcome, and it would be difficult to find authors more capable of doing justice to the subject than Professor Vaughan and Professor Novy who have been for so many years workers in this department of research. As long ago as 1885 Professor Vaughan discovered the poisonous body "tyrotoxicon" in cheese which had proved harmful, and the work of the authors on the bactericidal constituents of blood serum was of the highest value. The present volume is the fourth edition of a work which first appeared 14 years ago. During that period attention has been diverted from the basic products of bacterial activity,—the ptomaines,—which were originally supposed to be the chief factors in the causation of disease, to the synthetic substances—cellular toxins—formed within the cells of the micro-organisms. Consequently, much re-writing and re-adjustment of the space allotted to the various subjects treated have been necessary and a change in the title of the book, expressing the alteration in our conceptions, has been made.

After an introductory chapter showing the essential importance in the etiology of a disease of the poisons produced by the associated micro-organism, the various toxic bodies formed by individual microbes are studied in detail. The germicidal properties of blood serum are next dealt with, and then precipitins, lysins, and agglutinins are treated in successive chapters. This portion of the book is an excellent *résumé* of the work which has been done by various investigators, but amid this impartial record of results obtained we cannot help wishing for a little more of the personal touch of the authors. A chapter on immunity follows and, as was to be expected, an even balance is kept between the various hypotheses which have been suggested as explanations of this natural or acquired condition, and care is taken to insist that the factors involved in securing immunity against infectious disease are multiple in number and varied in character. The authors' first-hand experience is stamped on the section dealing with food poisoning, which is very complete notwithstanding that they lament in the preface that in the desire to take up less space statements of considerable importance are omitted, especially in the chapter devoted to poisonous food. A glossary containing a somewhat formidable array of new terms employed by the authors is prefixed to this chapter.

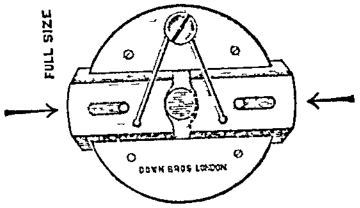
The remainder of the work—nearly one-half—is taken up with the chemistry of the ptomaines and leucomaines. The individual members of these two groups are treated with much detail and several useful lists and tables of the principal reactions of these bodies are given. This is probably the best account to be found in English of these decomposition products, and it seems to be the portion of the subject with which the authors have the most sympathy and interest. An immense number of facts are here collected from the original papers and they are thoroughly well digested. The cleavage products of the proteids are very completely treated and there is a fairly full discussion of the work of Kossel and others which throws light on the constitution of the proteid molecule. Next we have a short account of the toxicity of the urine and of the venoms of poisonous serpents, and a final short but suggestive chapter deals with what the authors call "autogenous" diseases.

For anyone who wishes to learn what work has been done on cellular tissues up to the most recent date this book is to be strongly recommended. It brings together and analyses a vast mass of information and we are grateful to the authors for the immense labour which must have been spent on the work.

LIBRARY TABLE.

A Practical Guide to Disinfection. By M. J. ROSENAU, M.D., Director of the Hygienic Laboratory, Washington. With a Supplement by FRANCIS J. ALLAN, M.D. Edin., Medical Officer of Health of the City of Westminster. London: Rebman, Limited. 1903. Pp. 353; Supplement 94. Price 10*s.* net.—This sensible manual is divided into six chapters, not the least interesting of which is the first on physical agents, including sunlight, electricity, and heat. This is followed by a chapter on gaseous disinfectants, such as formaldehyde, sulphur dioxide, chlorine, and ozone. The author very properly lays stress upon the danger of using the vapour of hydrocyanic acid for disinfecting purposes. There is a useful chapter on the chemical solutions commonly employed in disinfection, and after this come practical chapters on the use of insecticides, the disinfection of houses and ships, and special means of disinfection for the communicable diseases. The onset and cause of the diseases are described and the best application of disinfection is discussed. The book is thus thoroughly practical and should be of distinct service to the general practitioner. The relative germicidal efficiency of the commonly employed disinfectants is given. The use of a spray is described in the supplement, in which we are also glad to see that Dr. Allan has not omitted to emphasise the advantage of effectually removing infected dust from floors, walls, and ceilings. In this connexion he mentions the method of cleaning by vacuum which was described at length in THE LANCET of Feb. 14th, 1903, p. 465. The book may be confidently but if the needle becomes blocked and it is necessary to apply force to the contents of the cylinder the plates are approximated by the finger and thumb of the left hand and catching the thread of the piston rod, the piston can then be screwed into the cylinder instead of being pushed. Much greater pressure is in that way applied to the contents of the cylinder and the plug of solidified paraffin is easily forced out. DAVID M. GREIG, C.M., F.R.C.S. Edin.

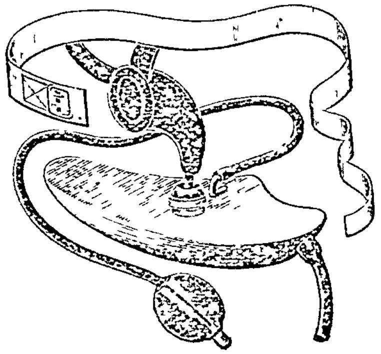
FIG. 2.



Dundee.

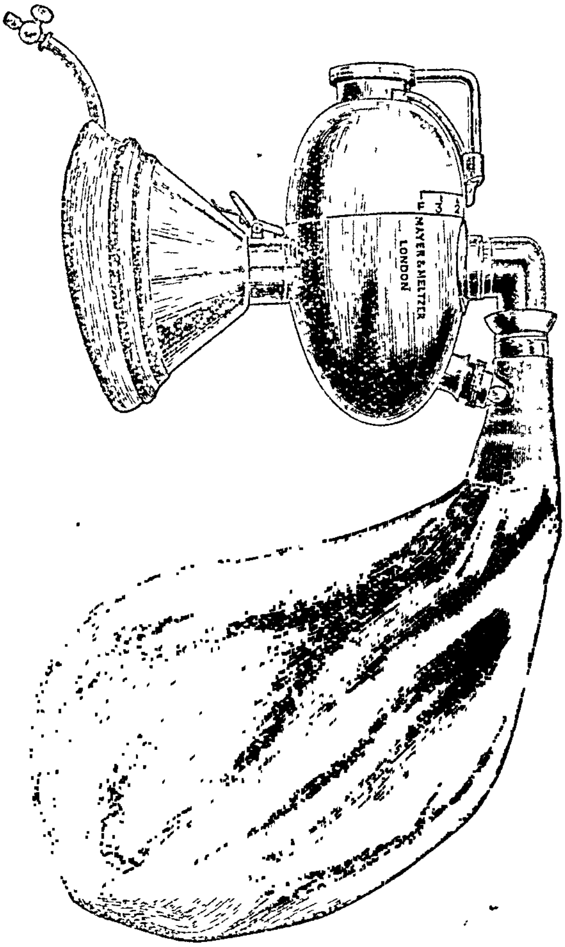
AN IMPROVED BED CONVENIENCE.

THE illustration represents a new form of "bed convenience" or urinal for the use of invalids or bedridden persons suffering from incontinence of urine. It seems to combine the chief desiderata in such an appliance—namely, flatness of shape, non-liability to spilling of the contents, and facility of emptying. The reservoir is of nickel-plated sheet metal having for its extreme dimensions a length of 13 inches, a width of six inches, and a depth of two and a quarter inches. The receptacle for the urethral orifice is of pliable indiarubber and is attached to the reservoir by a ball and socket union which allows some freedom of movement in all directions. The arrangement shown, in which the indiarubber part is buttoned to a waist-belt in front, is for males; for the use of females the indiarubber part is concave above with two straps at the inferior margin. The reservoir and metal fittings are identical for both sexes. If required, the reservoir can be emptied in the following way without removing it from the bed or disturbing the patient in the slightest degree. A flexible indiarubber waste-pipe leading over the edge of the bed is attached to the short outlet nozzle as shown and if the urine does not flow away it is withdrawn by syphoning through the waste-pipe, for which purpose air is forced into the upper part of the reservoir by means of the globular hand-bellows. The manufacturer is Mr. Thomas Bradley, 25, Wellington-street, London, W.C.



A WIDE-BORE ETHER INHALER.

THE advantages of a regulating inhaler for the administration of ether as an anæsthetic are well recognised. Among the instruments made on this system Clover's portable inhaler is certainly an excellent one, but it nevertheless has a distinct drawback in the narrowness of the tube through which the patient breathes. This tube, at the end to which the bag is attached, is of about the diameter of the average trachea which is quite sufficient; but at the end to which the facepiece is fitted or at some other part this bore is diminished by one-half and occasionally by even more, and as a result obstruction is offered to free breathing. Modifications of Clover's inhaler with the bore increased have been introduced by Dr. T. Wilson Smith[1] and Dr. F. W. Hewitt[2] and for some time I have been making experiments with a similar object in view. Messrs. Mayer and Meltzer, 71, Great Portland-street, London, W., have now made for me the inhaler which is shown in the illustration and which I venture to think presents all the essentials of a good portable regulating inhaler with a free passage for respiration. In shape it is oviform and the body is pierced in both its short and long diameters by two tubes. Through the short or vertical tube the patient breathes and to its extremities are attached the bag and the facepiece respectively. In the long or horizontal diameter there rotates another tube which regulates the amount of the air which is guided into the ether chamber. An indicator is fixed to the end of this tube and moves round part of the larger end of the inhaler. The index is divided as in Clover's inhaler, 0, 1, 2, 3, F. The vertical tube—that is to say, the one through which respiration takes place—is slightly wider in diameter than the average adult trachea and this bore is not diminished at any time during the administration, so that there is no obstruction to free breathing. At the smaller end of the body of the inhaler is the opening through which the ether is introduced. This is closed by a stopper with a bayonet joint. There is no water chamber and the two metal parts composing the inhaler may be separated and boiled and thus rendered sterile. The facepieces are of metal with detachable indiarubber collars and air-pads; they are fixed to the inhaler with a small catch which easily enables the inhaler to be held in any position and at the same time allows one facepiece to be quickly changed for another. For preceding the administration of ether by nitrous oxide a detachable bag, either with or without valves, may be used as with Clover's inhaler. The benefit of the increased bore is shown by the quicker respiration, while the patient secretes less mucus and saliva and does not become cyanosed. The inhaler is six ounces lighter than the ordinary Clover model and is more comfortable to hold on account of its shape. R. J. PROBYN-WILLIAMS.



Welbeck-street, W.

---

[1] Medical Annual (Wright). 1899.
[2] THE LANCET, March 30th, 1901, p. 916.

THE LANCET.

LONDON: SATURDAY, AUGUST 29, 1903.

Lord Salisbury as a Man of Science.

BY the death of Lord SALISBURY the country has lost an earnest student as well as an admirable exponent of science, and it is in this capacity that we wish to speak of him, leaving to the general press, as is fitting, the duty of recording and estimating the services to his country of the dead statesman. With his characteristic modesty and retiring disposition Lord SALISBURY never claimed to be a man of science, but all who listened to his presidential address "On the Unsolved Riddles of Science" delivered before the meeting of the British Association at Oxford in 1894, as well as those who had the pleasure of reading it afterwards in our columns,[1] were deeply impressed with the comprehensive grasp which he had upon the development of science in each and all of its branches. On that occasion he certainly did not confine himself to a mere generalisation of the scientific position; on the contrary, he alluded, and with a freedom which completely surprised those who devote their time almost exclusively to scientific study, to many of the minutest details in the problems which occupy the attention of the chemist, physicist, biologist, and astronomer. He discussed the foundation of the atomic theory, the nature and origin of the so-called elements, the spectroscope in its application to the study of solar and stellar phenomena, ether and Herzian waves, bacteriology, and the theory of natural selection, and did so with the confidence of one who knew his ground. This gave great conviction to his conclusion that the advances in each section of knowledge had been very great, while the hope of penetrating the prime mystery of all seemed as far off as ever. Lord SALISBURY confessed to being pessimistic as to whether we should ever gain a clear insight into the nature and origin of life. It was characteristic of him, viewed in the light of his known mental attitude in other provinces, that he chose to survey the state of our ignorance rather than the proud position of our science. "We live," he said, "in a small bright oasis of knowledge surrounded on all sides by a vast unexplored region of impenetrable mystery and from age to age the strenuous labour of successive generations wins a small strip from the desert and pushes forward the boundary of knowledge."

Confession like this to a sense of the smallness of man, his aims, and his objects, comes frequently from those who have pursued science all their life, and stamps Lord SALISBURY with the brand of the great philosophers. Sir ISAAC NEWTON 200 years ago wrote: "I do not know what I may appear to the world but to myself I seem to have been only like a boy playing on the seashore and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me." And all modern men of research feel the force of this truth, however brilliant their discoveries may be. A striking confession of impotence in regard to our efforts to reach finality in one direction was contained in the presidential address delivered by Professor DEWAR before the British Association of Science at Belfast last year. Everyone knows what wonderful perseverance and skill Professor DEWAR has brought to the attempt to obtain the temperature of absolute zero and what light on the nature of things such an achievement would be calculated to throw. Yet he admitted, just when everyone expected to hear that he was on the eve of success, that all efforts to attain a temperature lower than 13° absolute had met with failure, and he went even further and expressed the opinion that it was extremely improbable that the absolute zero would ever be reached by man. Thus it would seem that we may never know the chemistry of extreme cold nor probably that of extreme heat. Again, chemists have vigorously laboured since the time of DALTON at elucidating the nature of the atom and in spite of brilliant discoveries "all have failed," to quote the words of Lord SALISBURY, "to show what the atom is, whether it is a movement, or a thing, or a vortex, or a point having inertia; whether there is a limit to its divisibility and if so how that limit is imposed; whether the long list of elements is final, or whether any of them have any common origin." A very important step forward has been made by the discovery of radium, the properties of which have proved the existence of a fourth condition of matter—radiant matter, as Sir WILLIAM CROOKES called it years ago, now definitely known as electrons. But it cannot be denied that what we know is infinitesimally small compared with what we do not know, and that the pessimistic tendency of our greatest minds has a logical ground. "Of counteracting and complementary forces to which we give the provisional names of 'negative' and 'positive' we know about as much," said Lord SALISBURY in the address to which we have referred, "as FRANKLIN knew a century and a half ago. Vital force continues to defy not only our imitation but our scrutiny, and if we are not able to see far into the causes and origin of life in our own day it is not probable that we shall deal more successfully with the problem as it arose many million years ago. ...... The deepest obscurity still hangs over the origin of the infinite variety of life." For Lord SALISBURY was obviously reluctant to accept the views of the Darwinian school. He delighted in contrasting the deductions of the mathematician and geologist with those of the biologist upon the question of when life was first possible upon this planet. "If the mathematicians are right," he said, "the biologists cannot have what they demand. If for the purposes of their theory organic life must have existed on the globe more than a hundred million years ago it must, under the temperature then prevailing (according to the calculations of the mathematician), have existed in the state of vapour. The jelly-fish would have been dissipated in steam long before he had had a chance of displaying the advantageous variations which were to make him the ancestor of the human race." The words sound flippant, but they convey the wise lesson that as yet we know very little. Our greatest theories fail to tally with our most exact calculations, and the earnest student has to abide in the gloom of doubt without much indication of the direction whence light may come to succeeding generations.

---

[1] THE LANCET, August 11th, 1894, p. 305.

It is generally understood that the branch of science which Lord Salisbury loved best was chemistry, and the freedom with which he discussed chemical questions gives weight to the suggestion. Besides, it was well known that he spent much time in his laboratory in Hatfield House, where, however, he directed his attention also to engineering and electrical problems. He conceived the idea of utilising the flow of the river Lee for the electric lighting of the house, and the provision of a water-supply to the town of Hatfield from the mains of Hatfield Park was due to his thought and kindliness. In many ways he showed that his love of science had practical as well as academic leanings, but he made no original communication on scientific subjects to the learned societies. He was elected to the Fellowship of the Royal Society in 1869 and almost immediately became a member of the council. He took a keen and active interest in the internal affairs of the Royal Society, for he served on the council in 1882–83, and again in 1892–94. He was vice-president also in 1882–83 and in 1893–94. And almost his last public act was associated with science and not with politics, for on the occasion of the election of the Prince of Wales to the Fellowship of the Royal Society in April last it was Lord Salisbury who introduced him to the President and Fellows. Lord Salisbury's character as a man of science deservedly secured for him the particular respect and admiration of our profession, though it must be confessed that he made no bid whatever for our favour. Lord Salisbury's name is not associated with a single popular measure of the kind that would be sure to win medical approbation. But medical men could see in his attitude towards life the trained and austere thinker. He did not speak if he did not know; he would not proceed to the next step till he had verified the one on which progress should depend; and having convinced himself in which direction truth lay he would hold firmly to his convictions.

◆

What is Sciatica?

It is always refreshing to find someone willing to assail an old-established theory in medicine, for if the attack should prove successful it will serve to overthrow an erroneous opinion and put in its place a theory which is nearer the truth, and thus our knowledge is advanced; while if the attack fails we feel that the received views have gained additional support and we look upon them as more firmly established than ever. For it is good for us to examine from time to time the reasons for the faith that is in us and to test the firmness of the foundations of our beliefs, that we may be assured that we have not believed in vain. No true scientific opinion can suffer by being put to the test, for only the false fail to stand the trial. Within the last year or two the phenomena connected with radium and other similar manifestations have caused physicists to revise some of the most fundamental theories connected with the nature of matter and force, and to modify tentatively their hypotheses. Every change in theory thus necessitated by additional observation will lead to a closer approximation to the truth, and yet we must not look upon these advances as final, for in their turn these new theories may have to give place to still newer hypotheses.

So it is with the science of medicine, and no truly scientific physician will persist in holding as perfect a theory which is unable to explain the symptoms and signs connected with a disease—the discrepancy discredits the theory. But if, on the other hand, it can be shown that the apparently contradictory fact is easily reconcilable with the theory, the theory does not merely escape from the attack but it receives additional confirmation from the very fact that was supposed to invalidate it. Dr. William Bruce has recently delivered a lecture[1] at the Medical Graduates' College and Polyclinic on Sciatica, in which he advances the ingenious but somewhat startling opinion that the complaint known as sciatica is quite unconnected with any affection of the sciatic nerve. He considers that the condition is neither more nor less than an inflammation of the hip-joint, probably osteo-arthritic in nature. The arguments on which he founds this opinion are based on observation of 418 instances of the disease and they may be summarised as follows. In almost all of his cases lameness was present, movement causing pain; there was "tenderness on pressure over the capsule" in more than half the cases; and flexion or rotation caused pain in a large proportion. In almost every case he has found wasting and flattening of the hip muscles and a more or less obliteration of the gluteal folds of the affected side. Dr. Bruce contends that if sciatica were an affection of the sciatic nerve all the muscles supplied by it should be wasted and not muscles like the glutei which are supplied separately by nerves from the sacral plexus. In sciatica, moreover, he points out, there is pain along the outer side of the leg extending in some cases as low down as the heel, and there are also occasional patches of anæsthesia, generally on the outside of the thigh or leg. These pains and patches of anæsthesia Dr. Bruce attributes to "reference" from the branch of the sciatic nerve which supplies the hip-joint, and he points out the similarity of the symptoms to those displayed in the morbus coxæ of childhood. In more than half of his cases there was evidence of gout or rheumatism in other joints and a small number of cases which began as sciatica went on to ankylosis of the hip-joint.

We may acknowledge *in limine* that there is great justification for the attack which Dr. Bruce has made on the present use of the name "sciatica." Only too often is the word employed as a convenient general term for pain over one hip, especially in middle-aged and elderly persons. Thus it has been used to cover a multitude of miscellaneous conditions which should never have been grouped together, either clinically or pathologically; and this error has been committed not only by patients but also by many members of the medical profession who have been too ready to hide under a convenient well-known appellation their want of knowledge of the exact condition present. Undoubtedly many cases of disease of the hip-joint, especially forms of osteo-arthritis in the elderly, have been called sciatica merely because the pain has been chiefly felt in the gluteal region. In some cases the referred pains mentioned by Dr. Bruce may well be attributable to a lesion of the hip-joint, yet even if we acknowledge the arthritic origin of some, or even of many, of the cases of "sciatica" we shall still find many which utterly refuse to be included in any such group. Few, indeed, are the cases of osteo-arthritis which recover completely and yet complete recovery is very usual in sciatica. Dr. BRUCE acknowledges that in the operation of nerve-stretching surgeons have found the sciatic nerve to be swollen and inflamed, but these observations he dismisses as untrustworthy. He appears to deny the existence of any form of neuritis, for he asks, Why should there not be neuritis of such nerves as the ulnar? We can only answer that neuritis of the ulnar is not at all rare. It may arise from alcohol, diabetes, rheumatism, and leprosy; it may result from the taking of arsenic and from several other causes; in fact, we should not have thought that at the present time any physician would have denied *in toto* the existence of neuritis in any form. That inflammation of nerve-trunks does exist has been abundantly shown by histological examinations and there is no *à priori* reason why the sciatic nerve should be specially exempt. One of the main arguments advanced by Dr. BRUCE is that movement often aggravates the pain and that rest is necessary for recovery, but every movement of the hip-joint causes movement of the sciatic nerve and it would be strange if bending did not cause pain to an acutely inflamed nerve. When the inflammation becomes chronic pain will be less marked on movement. To sum up, Dr. BRUCE's lecture should prove useful in calling attention to the need for greater care in applying the name "sciatica" and for not giving it to all cases of pain in the hip and thigh, for many of these are associated with disease of the hip-joint. His evidence as to the value of rest in treatment should lead to a greater employment of one of the most important therapeutic measures in sciatica. But we hold that he has failed to prove his contention that a true sciatic neuritis does not occur.

---

[1] The Lancet, August 22nd, 1903, p. 511.

The Milroy Lectures on Pulmonary Tuberculosis.

THE publication of the Milroy Lectures of the Royal College of Physicians of London was somewhat delayed in our columns in order that the author, Dr. H. TIMBRELL BULSTRODE, might extend and amplify his work in directions which the limits of time precluded him from following during the delivery of his addresses. As they appeared in our columns Dr. BULSTRODE's lectures form an excellent summary of what is known as to the causes, prevalence, and control of pulmonary tuberculosis while the free expression of personal views lends attraction to the treatment of the various points.

For centuries past there has been a common belief in some parts of Europe that consumption is an infectious disease and as early as 1782 stringent regulations were enforced in Naples in order to attempt the stamping out of the malady. Dr. BULSTRODE points out that at the present time there may be said to be two schools of thought with regard to the main channels of infection between man and man, the one school maintaining that the greatest danger is to be attributed to the tubercle bacillus contained in the dried sputum, whilst the other considers that there is more potency for harm in the droplets thrown off by a tuberculous patient during cough. The relative merits of these theories invite discussion, but we prefer to follow the question raised by Dr. BULSTRODE as to the actual measure of the communicability of the disease. We perfectly agree with his statement that, while there can be no reasona that pulmonary tuberculosis is under certain co an infectious malady, there can be equally no q that its communicability is of a low order. The testin of experience, which is a more scientific test, we subm than the records of certain laboratory experiments must be sufficient to satisfy all medical practitioners that the communicability of this disease can only be contrasted, not compared, with that of diseases such as small-pox, typhus fever, or whooping-cough. The professional edict has gone forth, however, that "consumption" is an infectious disorder, and has given rise to much misconception in the public mind, which is without proper information upon the degree of infectivity implied. Unless the lay mind is reassured as to this a great deal of undue alarm will be caused and, as a consequence, needless suffering may be inflicted on affected individuals. Dr. BULSTRODE gives examples which have been brought to his notice, the most flagrant, perhaps, being that of a rector who forbade his curate to visit at a sanatorium for tuberculosis because in the rector's opinion the disease was "as dangerous as small-pox." Whilst in no sense disputing the communicability of the disease, we join with Dr. BULSTRODE in pleading for more caution in setting forth the facts to the public, who should be told not only the amount of risk that they run but the best course to protect themselves against that risk. For pulmonary tuberculosis being admitted to be an infectious disorder, the problem naturally arises as to the means to be adopted to prevent its dissemination. The question of notification is a vexed one. We have on the whole sided with those authorities who believe that compulsory notification would not only fail to make any appreciable difference in the incidence of the disease but would tend to have disastrous consequences to the social life of the community. Dr. BULSTRODE suggests that it might, in the first instance, be well to limit notification to cases of pulmonary tuberculosis in which the condition and environment of the patient are such that danger to the public is liable to accrue. In support of this view he quotes Professor KOCH, who, when referring to the subject of notification, said: "Fortunately, it is not at all necessary to notify all cases of tuberculosis, not even all cases of consumption, but only those that, owing to their domestic conditions, are sources of danger to the people about them." This amounts to saying that the general sanitary surroundings of such patients should be notified rather than the disease. We have frequently urged that the chief responsibility for arresting the spread of pulmonary tuberculosis lies with medical men. It is their duty to educate their patients in the precautions which they should adopt to prevent themselves from being a danger to their fellow creatures. Therein lies the preventive medicine of the future. Dr. BULSTRODE speaks in similar terms when he says: "It is in the inculcation of the general principles of health, which include more air, more light, more cleanliness, and generally better housing, that we are pursuing the surest and the best tried road towards success."

At the conclusion of his lectures Dr. BULSTRODE speaks in still stronger terms when advocating practical measures for the control of pulmonary tuberculosis. He would have the older children educated in the principles of health. He would have also periodically the physical examination of all school children with a view to improving the health of those prone to tuberculosis or who may already be suffering from the disease in an unrecognised though not unrecognisable form. The direct and indirect results which would accrue from this would soon make themselves felt in the direction of an unwillingness on the part of the people to occupy slums or to dwell in places where the sun rarely penetrates, while local authorities would become more alive to the value of public health. Next Dr. BULSTRODE recommends a system of compulsory insurance against sickness and invalidity such as obtains in Germany which, it is important to note, makes for the provision of sanatoriums. Lastly, and most important of all, he places the need for better housing and improved conditions of employment of the working classes—"more light, more air space, better ventilation, and greater cleanliness in the home, the workshop, and the factory." There will not be a dissenter from these views among medical men, while one of the most valuable deductions to be made from Dr. BULSTRODE'S words is that a little instruction to the patients and their friends from practitioners attending cases of pulmonary tuberculosis will have more influence in the prevention of the disease than the enforcement of laws. Legal enactments cannot fail to produce a considerable amount of friction and will cause attempts at concealment of early cases of disease; whereas it is the aim of the medical profession to diagnose cases of pulmonary tuberculosis at the earliest stages, not only on account of the better prognosis which treatment then affords, but also in order to warn others of the danger. A large number of early cases already escape recognition, as the sufferers do not seek medical advice; still more would this occur if it became known that all such cases would be notified. The patients would be afraid that a sort of ban would be placed upon them as being a source of infection, and doubtless such would to a certain extent be the case; whereas a few kindly words of instruction and direction from the medical practitioner would reduce the fear of infection to a minimum.

◆

The Rules of the Central Midwives Board.

THE rules framed by the Central Midwives Board in accordance with the provisions of the new Midwives Act have been approved by the Privy Council and were published in THE LANCET of August 22nd, p. 555. The original draft rules as drawn up by the Board and submitted to the General Medical Council were accompanied by a minority report signed by three out of the five medical members of the Board. It is to be regretted that there should have been so serious a want of unanimity amongst the members of the Board. Many of the rules involve matters upon which only trained medical men can come to a proper conclusion and it is most unfortunate that the views of a majority of the medical members seem to have been overruled in many instances by the votes of the lay members. The Privy Council has, however, with the assistance of the representations of the General Medical Council, made a number of alterations in the draft rules from the form in which they first appeared, and has considerably improved them by adopting some of the suggestions put forward in the minority report. But even in their final form we cannot entirely agree with the regulations as laid down by the Privy Council. Also the new Board has commenced its official career by making what we believe to be a serious mistake. It has determined for some reason which we fail to appreciate to hold its meetings in private. Not only has it decided not to admit the public but we gather that it does not intend to publish its minutes. In view of the amount of opposition amongst many members of the profession raised by the new Act any attempts to throw a veil of secrecy over the proceedings of the Board appear to us most injudicious.

The question of the preliminary education of the midwife is one of some difficulty. The rules state that candidates must satisfy the Board that they have reached a certain standard of general education. No definite standard is, however, laid down, and the objection of the dissentients that unless this is done the passing or rejection of candidates must depend largely upon the caprice of the examiners in different parts of the country seems to us a fair one. Their further contention, that no medical practitioner should be recognised as a teacher by the Board unless he holds an appointment on the staff of a recognised lying-in institution, or has charge of the lying-in ward of a workhouse hospital approved by the Board, is an important one. Improperly trained and irresponsible persons have often taken up the coaching of candidates for the examination of midwives instituted by the Obstetrical Society of London, and failing strict regulations upon the subject there can be no doubt that this practice will increase to a considerable extent. But even supposing the teachers to be all competent, when we consider the range of subjects which are laid down in the syllabus for the examination it becomes doubtful whether the minimum period of instruction—viz., three months—is really sufficient. We should like to have seen the period increased to six months, but no doubt the Privy Council was influenced by the question of expense, since it is imperative that the cost of training should be kept as low as possible. The range of the subjects of the examination is in the case of midwives a difficult matter to determine. The duties of a midwife in regard to her patient cannot be too clearly stated and the limits of what she ought to practise should be rigidly defined. No doubt the midwife should not be allowed to assume that she is at liberty to use all her knowledge in ordinary circumstances; but cases of emergency will arise where, in the absence of medical assistance, a midwife who did not use all her knowledge might well be responsible for the death of the patient. For example, under the subjects of the examination we find "hæmorrhage, its varieties, and the treatment of each," while in the minority report was the statement, "The treatment of hæmorrhage cannot be any part of a midwife's duties." If we are to understand by the word "duties" merely "duties under normal conditions," we quite agree that the treatment of hæmorrhage is removed from the midwives' sphere, but to suppose that in conditions of emergency the treatment of hæmorrhage is no part of the midwife's duty appears to us absurd. While there can be no question but that the midwife should be clearly instructed that she must send for medical assistance whenever hæmorrhage occurs, yet she must be at liberty in a case of urgency—and such cases are often most urgent—to do whatever she has been taught to do. In a severe case of post-partum hæmorrhage it requires no words to prove that she must do her best till the presence of a medical man relieves her of responsibility. This fact has long been laid stress upon in the examination of the Obstetrical Society of London, and one of the questions most often put to candidates is the correct treatment to be adopted in the absence of medical assistance in grave cases of hæmorrhage. Objections have been raised to the inclusion in the subjects of examination of "*the management (including the feeding) of infants*," because it is said that this seems to imply that the midwife is to act as a physician in the treatment of infantile diseases and that her duties may extend beyond the ten days of the normal puerperium. We fail to see that any such conclusion can or should be drawn from the paragraph in question. The chief duty of the midwife is to instruct the mother to suckle her child, but to suppose that the midwife is not to know how to feed a baby by hand, in the event of the mother not being able to suckle the infant, is to admit that she will often be even more ignorant than the patient whom she is engaged to attend. And the mother, as a rule, is ignorant enough. One of the most important causes of the enormous death-rate amongst newly born infants in this country is the absolute want of knowledge as to the proper feeding of babies by hand so prevalent amongst the poorer classes. Surely a midwife, of all people, should be instructed in such a subject, and to assume that the management and feeding of infants includes their medical treatment is an unwarranted interpretation of the clause in question.

Shall a midwife be allowed to administer drugs or shall she not? In considering this question it must be remembered that these women will form a class of trained and registered midwives under definite supervision and control—a class of person quite unrepresented in this country at the present time. They will in the near future be on a different plane to the so-called midwife of to-day. The members of the Board who signed the minority report wished to decide that a midwife should not be allowed to give drugs at all. The Privy Council and the General Medical Council have decided that they may, and have drawn up a rule instructing the midwife to enter in a book, with the notes of the case, every occasion upon which she is under the necessity of administering a drug, whether it be scheduled as a poison or not. We think that this is not going too far and that the safeguard is sufficient. It is, however, a point upon which there is sure to be difference of opinion. Considerable exception is taken in the minority report to the fact that the midwife was assumed in various of the draft rules to be in charge of a pregnant woman. That a midwife who is engaged to attend a patient in a confinement will often be consulted by her as to the minor disorders of pregnancy is certain. The dissentients appear to desire that a midwife shall never professionally be in charge of a pregnant woman. Such a contention appears to us to be beyond the range of practicability, although we appreciate the sound professional instinct that would have it otherwise. The Midwives Act having been passed it now only remains to ensure that the midwife is instructed as to what are the complications of pregnancy in which she must recommend her patient to seek medical assistance. These, of course, must be clearly defined, and this is now done. It is definitely stated in the rules of the Central Midwives Board that the midwife must decline to attend in all cases of abortion, of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in; whilst the various conditions under which she is to send for medical assistance are given in full detail. Amongst these conditions we notice that a breech presentation in a primipara is now classed. We are glad to see that the recommendation of the minority report has been accepted, and that specific directions are given as to the circumstances in which the midwife must send for medical assistance after delivery, as well as whenever the progress of either mother or child is not satisfactory. In all cases in which the death of the mother or child occurs before the attendance of a registered medical practitioner the midwife is to notify the death to the local supervising authority. She is ordered to do the same in the case of a stillbirth. May we hope that this indicates the possibility of some legislation upon the subject of stillbirths?

To the syllabus of the list of the subjects for the examination of midwives have been added puerperal fever, its nature, causes, and symptoms, the elements of house sanitation, and the best methods for the disinfection of person, clothing, and appliances. Under the heading of rules for notification we find puerperal fever and other infectious diseases. As, however, the midwife must send for medical help on the first appearance of the symptoms of these diseases the onus of notification will fall as it should on the medical man called in. It is hardly correct, therefore, to say, as the dissentients, we believe, maintained, that the onus of notification is laid upon the midwife. A very important addition has been made to the draft rules directing that the supervising authority shall make arrangements to secure an inspection of every midwife's case-book, bag, and other appliances, while if it should be thought necessary her place of residence and her mode of practice can also be made the objects of official scrutiny. These rules are approved for a period of three years. No doubt experience of their working will suggest some further modifications in the future. Although we have taken exception to some of them, yet on the whole they are satisfactory. They should prove a sufficient safeguard to the public by ensuring correct practice on the part of the women for whom they are intended.

Annotations.

"Ne quid nimis."

THE PSYCHOLOGICAL ASPECT OF THE HUMBERT CASE.

THE trial of the notorious Madame Thérèse Humbert and her accomplices, which was concluded before the Paris Assize Court on August 22nd, when the prisoner was found guilty of forgery and swindling and sentenced to a term of five years' imprisonment, has a psychological interest special enough to warrant a recapitulation of her oft-told tale. Thérèse Humbert was a person of humble origin, her parents were peasant farmers, and the education which she received in childhood was slight, consisting of the bare elements of reading and superficial cardiac dulness. The right ventricle is the most dilatable and the most contractile part of the heart. If in consequence of dilatation of the right heart there is passive congestion of the liver the hepatic dulness will simultaneously diminish with the reflex diminution of the cardiac. M. Merklen and M. Heitz found the cardiac reflex absent in health only once, in a man, aged 32 years, given to athletics. Abrams has remarked that the reflex is more easily produced in children and in subjects with little adipose tissue and slightly developed thoracic muscles. It is more transitory in healthy persons than in those with dilated hearts. In the former it lasts scarcely two minutes, in the latter it may be prolonged for several hours. In cardiac neurasthenia it is well marked. The cardiac reflex may be temporarily absent in extreme cases of dilatation of the heart. It was absent in a woman with a systole, enormous cardiac dilatation, cyanosis, and much anasarca, but when she was relieved and diuresis established it returned. The cardiac reflex is permanently absent in pericardial effusion and in adhesion of the visceral and parietal pericardium. Hence the presence of the reflex in cases of difficult diagnosis enables these affections to be excluded. Finally, it is permanently absent, or almost absent, in profound degeneration of the myocardium and may thus be of prognostic import. The cardiac reflex is a similar phenomenon to the reduction of cardiac dulness produced by stimulation of the skin with saline effervescent baths. A reduction of cardiac dulness is also produced by exercises. Heitler of Vienna has produced it not only by stimulation of the præcordium but also by stimulation of the hepatic region and other parts and even by movements of flexion and extension of the joints. Thus the cardiac reflex may be produced by stimulation of the most diverse regions, but it is most marked and most constant after stimulation of the præcordium. The action of stimuli arising from the skin and viscera on the vaso-motor nerves and the consequent changes in size of the arteries and veins are well known. The heart evidently is susceptible to the same stimuli. Hence "the cardiac reflex."

THE ABSINTHE EVIL.

WHILE it is generally recognised that the influence of absinthe upon the human body is pernicious there has hitherto been some doubt as to the respective parts played by the alcohol which forms the basis of the fluid and the derivatives, such as of wormwood, angelica, and fennel, which give it its peculiar character. In France the law prohibits the sale of dangerous essences. Some importance therefore attaches to the researches conducted in the physiological laboratory of the Sorbonne by Dr. S. D. Lalou and published in his "Contribution à l'Etude de l'Essence d'Absinthe et de Quelques Autres Essences." Experiments were made on dogs and other animals and the preparations to be tested were administered in various ways. The results obtained were substantially the same in all cases and as the method most frequently employed was to introduce the material, mixed with a little yelk of egg, sugar, and water, into the stomach of the dog by means of an œsophageal tube, it will suffice to speak only of the toxic effects so produced. The first symptoms observed were agitation and restlessness, the animal wandering about and eating fragments—e.g., of paper, which were lying on the floor. Convulsions of transient character supervened, leading up to a definite epileptiform seizure in which the animal bit its tongue, foamed at the mouth, and passed its excretions involuntarily. Similar fits followed at intervals and were accompanied by vomiting and unconsciousness. After a time the dog returned to consciousness and gave evidence of suffering from hallucinations, sometimes wounding itself, adopting an attitude of defence, or exhibiting great fear. Sometimes it became very aggressive, barking with a menacing air, and finally precipitating itself upon an imaginary enemy. With a moderate degree of intoxication three or four epileptic attacks would occur. Finally a condition of stupor was reached, succeeded, if too large a dose had not been given, by recovery. The conditions above described were brought about by using the essences which manufacturers mix with spirit of suitable strength to form absinthe, so that alcohol was not in any way responsible for them; indeed, alcohol by itself merely gave rise to slight agitation rapidly passing into coma. When the essences were given in small doses for long periods so as to produce chronic poisoning the dog was found to lose weight and appetite, to develop tremor and weakness of the posterior extremities, and to suffer from gingivitis, buccal ulceration, albuminuria, and hæmaturia, while mentally it became stupid and ill-tempered. It would seem, then, that to the evils of simple drunkenness, surely sufficiently potent, there is often added in France the disastrous influence of a powerful nerve poison. That this was so has always been assumed by observant persons, medical and lay, but Dr. Lalou's experiments prove the assumption. They may therefore become very valuable to the community, for their lessons can be used by the law as arguments upon which to base legal prevention of the grave physical and moral evils due to the drinking of absinthe.

STUDIES RELATING TO THE QUESTION OF IMMUNITY IN THE HUMAN MOUTH.

DR. W. D. MILLER, professor of dental surgery in the University of Berlin, has during the last few months published[1] an account of some preliminary studies of immunity in its relation to the diseases of the mouth and the teeth. His results, although negative, are of interest, inasmuch as they will help to clear the pathway for future investigations. A large number of experiments were undertaken with regard to the antiseptic action of the saliva. Dr. Miller refers to the work of various investigators in this direction and points out that the views expressed have been very diverse. In Sanarelli's experiments, which for many years were considered to be conclusive, he considers that a source of error was in the removal from the saliva of the greater part of the nutrient matter, thus rendering it unfavourable for the development of bacteria. To overcome this source of error Dr. Miller experimented with saliva filtered through porcelain to which he added a solution of bouillon. The salivas of individuals immune to caries and susceptible to caries were subjected to investigation, with the result that he was unable to determine any retarding influence whatever on the part of the germ-free saliva. In caries of the teeth the numbers of the bacteria have not so much to be dealt with as their potency or capacity for bringing about processes of fermentation. With a view of determining whether the saliva had any influence in the production of acid a series of experiments was carried out with a mixture of four parts of filtered saliva to one part of bouillon (five-fold strength). The salivas of different individuals were again used with the result that as much acid was formed in the tubes in which the bouillon was diluted with saliva as in those in which it was diluted with water—in other words, 80 per cent. solution of saliva does not seem to exert a retarding influence on the process of fermentation. Undiluted saliva gave similar results. A series of control experiments with non-filtered saliva was next undertaken. The difficulty of obtaining saliva free from bacteria was overcome by experimenting with bacteria which develop rapidly at the temperature of the room, Dr. Miller maintaining that as the bacteria normally present in saliva do not develop at the temperature of the room they would have no disturbing influence on the development of bacteria growing at lower temperatures. The organism chosen for the experiments was the bacillus prodigiosus and the results showed that the saliva had no retarding influence on the development of that organism. Some interesting experiments with equine saliva compared with human saliva were recorded, the formation of acid in the case of equine saliva being much less than in human saliva. Having sought in vain for antiseptic properties in the saliva as a whole it seemed scarcely probable that any of its constituents in the amount usually present would possess any bactericidal properties. By some it has been supposed that sulphocyanide of potassium does possess antiseptic properties; for instance, Michel[2] considers that this salt is a natural protective against caries. But Hugenschmidt[3] considers that its antiseptic action in saliva is exceedingly weak, if not utterly wanting. Dr. Miller's investigations would seem to bear out Hugenschmidt's contention. Observations on the action of the buccal mucus showed that more intense fermentative action occurred in saliva containing large quantities of mucus than in the saliva of the same person compartively free from mucus. A long series of experiments was undertaken to determine whether there is any difference in the intensity of processes of fermentation in the saliva of persons immune to caries and in that of those highly susceptible to caries. Dr. Miller was unable to find in the saliva itself any factor which gave a satisfactory explanation of the immunity in the one case and the susceptibility in the other. He did find, as a rule, that the saliva of immune persons produced less acid by fermentation in a given time, especially in the first 24 hours, than did the saliva of susceptible persons. The difference, however, was not constant and in some cases the saliva of highly susceptible persons produced less acid than did that of a comparatively immune person. An endeavour was made to determine whether fresh saliva contains bactericidal substances analogous to the alexins of the blood but with negative results; Dr. Miller thinks, however, that the saliva may be able to neutralise toxic substances formed in the mouth and to render them innocuous. The researches of Wehrmann[4] support this view as this observer found that the ptyalin of human saliva mixed with a quantity of snake poison, which would otherwise prove fatal in a very short time, rendered it completely harmless. Dr. Miller indorses the view held by Goadby that the struggle for existence probably performs an important rôle in protecting the mouth against the invasion of certain pathogenic micro-organisms; he also is in agreement with Hugenschmidt in considering that phagocytosis plays an important rôle in oral immunity.

---

[1] Dental Cosmos, January and February, 1903; Transactions of the Odontological Society of Great Britain, March, 1903.

WORKHOUSE MASTERS AND MATRONS.

THE dissatisfaction felt by certain workhouse officials with the report of the Departmental Committee on the Nursing of the Sick Poor in Workhouses has found expression in the form of an earnest though somewhat confused memorial addressed to the President of the Local Government Board by the National Association of Workhouse Masters and Matrons. The document supplies no valid reason for disagreement with the Departmental Committee's recommendations. According to par. 2 it has only been sent "under constraint of duty," but further on we learn that "masters and matrons think they have distinct grievances," and we judge from the general tone of the missive that this has been the more powerful motive. "Masters and matrons" we are assured "have peculiar opportunities of forming a sound judgment on the proper nursing of the sick poor in workhouses from an inside position and they feel constrained at this juncture to use whatever influence they may have with the Local Government Board, for the interests of all concerned, on the side of maintaining the present *status quo* as fixed by the Nursing Order of 1897." With this claim to special knowledge the Departmental Committee is not, apparently, in sympathy, for in several passages of its report it distinctly discourages the interference of masters or matrons with the work of caring for the sick. This exclusion from the wards and consequent loss of authority is the chief bone of contention, and yet the proceeding is reasonable enough where the matron has had no training in nursing. Objection is also taken to the attempt to remove from the control of workhouse masters the granting of leave to certain officers. In the opinion of the memorialists "a direct result of the adoption of the committee's report would be a falling off in the character and calibre of the aspirants for the office of master and matron." We do not think the prospect is really so alarming; at all events the condition upon which depends the status of masters and matrons is primarily the amount of payment they receive and there is no suggestion that their salaries will be diminished. It is quite time that such officials should recognise that the old order changeth—even if it is a nursing order of the Local Government Board. Whether rightly or wrongly, the State is now trying to make the best of its paupers and to that end it requires the intelligent coöperation of educated and trained minds. For this reason the conflict between masters and medical officers or between matrons and superintendent nurses can only have one issue. There is plenty of evidence that a medical man can do administrative work as well as or even better than a master, while the latter is quite incompetent to undertake the duties of the medical officer, though he does not always appear to realise the fact. Similarly a trained nurse is more likely to be an efficient administrator than a workhouse matron. We do not, of course, refer here to the matrons of the Poor-law infirmaries who are usually themselves nurses. Friction occurs because it is not in human nature that a man who has acquired a medical qualification as the result of much expenditure of time and money should be content to be subordinated to one who is, however estimable a man in other respects, of lower social standing; yet this relation is common enough under the present system. The case of matron and superintendent nurse illustrates the same difficulty. Masters and matrons of the old-fashioned kind have, in fact, played their parts and new factors will be taken into consideration in future in making these appointments.

THE DISPOSAL OF EMBRYOS.

A NOTE contributed by our Paris correspondent to THE LANCET of August 22nd, p. 563, described the state of the law of France with regard to the disposal of embryos in that country. The regulations imposed are characterised as sadly lacking in precision and clearness and the varieties of practice to which they give rise and of which instances are given would be mildly described as unsatisfactory. It would be impossible, however, to claim for the law of England any marked superiority in respect of this particular subject. The registration of births and deaths is governed in this country by an Act of Parliament passed in 1874 which throws upon a considerable number of persons in both cases the duty of providing the registrar with information. With regard to the still-born child no registration of the delivery is required; it figures neither as a birth nor as a death and the only record required to be made is that of the burial. Certain restrictions are imposed upon this, mainly with a view to prevent the burial of children who have been born alive as if they had been still-born. The section dealing with the matter does so in these terms:—

---

[2] Deutsche Monatsschrift für Zahnheilkunde, 1902, p. 217.

[3] Dental Cosmos, October, 1896.

[4] Annales de l'Institut Pasteur, 1897, tome xii., p. 510

> A person shall not wilfully bury, or procure to be buried, the body of a deceased child as if it were still-born. A person who has control over or ordinarily buries bodies in any burial ground shall not permit to be buried in such burial ground the body of any deceased child as if it were still-born and shall not permit to be buried, or bury, in such burial ground, any still-born child before there is delivered to him either (*a*) a written certificate that such child was not born alive, signed by a registered medical practitioner who was in attendance at the birth or has examined the body of such child; or (*b*) a declaration signed by some person who would, if the child had been born alive, have been required to give information concerning the birth to the effect that no registered medical practitioner was present at the birth, or that his certificate cannot be obtained and that the child was not born alive; or (*c*) if there has been an inquest an order of the coroner.

The persons required to give information concerning a birth include each person present at the birth, so that in cases where no medical man has attended the declaration spoken of is frequently made by a midwife, and may be made by someone else more directly interested in the matter. This system has naturally led to abuse and danger, and although in the case of midwives the Midwives Act, when it comes into active operation, may effect an improvement, it can readily be seen that a very important question is frequently left to depend upon the uncorroborated statement of ignorant; interested, and practically irresponsible persons. In France, as our correspondent informs us, in the case of a legitimate birth, where the fœtus has arrived at or near the full term, the body is usually and lawfully interred in a burial ground. In the case of an illegitimate birth, or of an embryo of less than four and a half months, it is otherwise, the privy in the latter case, at all events, providing a very undesirable mode of disposal. In England the law, as far as we are aware, takes no cognisance of any difference between a fœtus which has arrived at or near term and one which has not. For the purpose of a prosecution for concealment of birth it has been held that an embryo of four or five inches long was the dead body of a child. This, however, may fairly be said to be a matter of theory rather than of practice, and the disposal of the fœtus of less than four and a half months is not often likely to figure in public statistics. With regard to the still-born body which has arrived at full term the practice no doubt varies in urban and rural districts and according to circumstances. The fact of birth is not recorded nor is death during or before birth the concern of any public official. Burial is subject to the formalities which we have described, the "secret disposition" of the body being punishable as a misdemeanour. As far as children are concerned whose safe arrival in the world is desired, these precautions are no doubt sufficient. The importance of the question, however, lies in the fact that to many expectant mothers the advent of a child is by no means welcome, and even in cases where there is no temptation to conceal the birth there may yet be a strong desire that the infant should not survive. In the case of a child who has been born alive and has died a medical man has to give a certificate of the cause of death, and if he does not do so the registrar and the coroner share between them the responsibility of deciding as to the burial. The still-born child if not "certified" as such by the medical man may be "declared" not to have breathed or shown any sign of life after birth by someone having no medical training whatever. The past 30 years have wrought considerable changes in the numbers and distribution of our population, and this and other circumstances render the revision of the law relating to the registration of births and deaths an urgent necessity, a view which our readers know that we have placed before them frequently. When any change takes place considerable attention will have to be given to still-births, the facilities for crime and immorality for which a lax system is responsible being very serious.

THE SUPPLY OF DIPHTHERIA ANTITOXIN.

THE value of antitoxin in the treatment of diphtheria increases as is well known the earlier the period in the disease at which it is used. This being so it is of great importance that a supply of diphtheria antitoxin should always be available for medical practitioners who have occasion to require it. Many municipalities have undertaken to supply antitoxin as part of their sanitary department and in most instances antitoxin can be obtained at the offices of the medical officer of health at the town-hall. In provincial districts, however, it has been found that delay often occurs, especially when the town-hall is closed, as on bank holidays, Saturday afternoons, Sundays, and at night. The Sanitary Department of the Borough of Richmond, Surrey, has got over this difficulty by means of the kind coöperation of the committee of the Richmond Royal Hospital. This committee has allowed a small quantity of anti-diphtheritic serum to be stored at the hospital for the convenience of medical practitioners of the borough and they have arranged that upon a written or personal application of any medical practitioner in the borough such serum as required will be supplied at any hour, day or night. A circular has been sent to all the medical men in the borough by the medical officer of health informing them of this arrangement and quoting the precautions to be observed when using the serum. The circular also reminds medical men that specially prepared tubes and boxes are kept at the Public Health Department for obtaining and forwarding specimens of blood and the like for the bacterioscopic examination of suspected cases of both diphtheria and enteric fever, the expenses of these examinations being borne by the corporation. We are glad to see that the health committee of the borough of Richmond is so alive to the advantages which accrue to both patients and the body politic in general from a rapid diagnosis and treatment of infectious disease. Prevention even more than cure is what the health committee of any borough should aim at, and the more rapidly cases of disease are recognised and treated the less likelihood is there of such disease spreading.

TUBERCULOSIS OF THE MAMMARY GLAND.

To the *American Journal of Medical Science* for July, 1898, Dr. Scudder contributed an exhaustive article on Tuberculosis of the Mammary Gland in which he stated that an examination of the literature showed only 80 cases reported up to that time, 23 of which were rejected on account of imperfect data. In the *Journal of the American Medical Association* of August 1st of this year appears a paper on the same subject by Dr. A. H. Levings of Milwaukee. An interesting summary is given of the pathology and morbid anatomy of the affection, the symptoms, diagnosis, and treatment, together with the reports of seven cases. It is conceded that tuberculosis of the mammary gland is most frequently found in young women between the ages of 20 and 35 years—that is to say, during the period when the gland is functionally most active. A few cases have been reported before and after menstrual life and the condition is occasionally observed in males. The clinical picture presented by a tuberculous process within the breast is a variable one. It naturally depends largely on the stage of the disease during which the examination is made, on the number of foci primarily infected, and also on the fact as to whether the process is primary or secondary. Attention may first be called to the condition by pain which is usually an early symptom. Not infrequently, however, pain is scarcely noticeable and the appearance in the breast of a node or nodes is the first sign noticed. These nodes are rather hard, not very sensitive, and quite irregular. They cannot be distinctly separated from the glandular structure and generally vary in size from that of a hazel-nut to half an inch or one and a half inches in diameter. They are distinctly separated from one another but lie in the same quadrant of the gland. The fact of the nodes being multiple is characteristic. The breast as a rule is not enlarged and on simple inspection nothing may be seen. The axillary glands during this early stage are enlarged and can be felt on palpation. As the condition progresses the nodes increase in size, though very slowly, possibly coalesce, become more elastic, and finally impart a sense of fluctuation. They may become adherent to the skin and the contents of the abscess may be discharged through a fistulous tract. While ordinarily the breast is not enlarged during the first stage of the disease, later, if pus is formed, the gland becomes noticeably enlarged. The nipple is frequently retracted." Dr. Levings concludes that tuberculosis of the mammary gland is not an infrequent condition but one which goes unrecognised, and he further believes that the condition is more often primary than has been generally supposed. He is, perhaps, correct in his suggestion that many of the cases of chronic mastitis and many chronic abscesses of the breast are really tuberculous. It would be interesting to have a bacteriological examination made of such cases in order to ascertain the truth of this theory.

MEDICAL ATTENDANCE AT ISOLATION HOSPITALS.

THE importance of providing adequately for the medical treatment of patients who are inmates of isolation hospitals has recently received illustration in a somewhat unpleasant fashion at Folkestone. Attention was drawn to the circumstances by the prosecution of a Londoner whose child had apparently contracted scarlet fever during a stay in Folkestone and who had refused to pay the charges made for medical attendance upon the patient. It appears that the corporation provides no medical attendance for the patients at the hospital, each inmate being expected either to employ his own medical attendant or presumably to dispense with medical attendance altogether. In the present instance the father of the patient having been charged for maintenance at the rate of two guineas per week refused to pay the fee of the medical attendant. Needless to say, judgment was given for the plaintiff. But this notwithstanding the judge strongly condemned the action of the corporation in providing a hospital without a medical staff, and it seems from the evidence of Dr. A. E. Larking that there have been cases in the hospital which, save for the charity of medical men, would have been entirely without medical advice, and the same witness added that the medical profession in Folkestone were by no means satisfied with the present state of affairs. Certainly we agree with His Honour Judge Sir W. L. Selfe that the matter is one to which the attention of the Local Government Board should be called. Possibly that Board might take up the position that it had no power to intervene in the detailed administration of an isolation hospital, and if this is the case it is eminently desirable that the necessary power should be bestowed upon the Board by statute. The accounts which have reached us as to the Folkestone case are insufficient to enable us to understand the precise nature of the administration at the hospital. We cannot believe that the corporation, having provided a hospital and a nursing staff, is content to leave the medical administration of the institution to the several medical practitioners who are called in from time to time to attend the patients, or that they would allow a patient to dispense with any medical supervision whatever were he thus inclined, or did his finances not allow him to pay the necessary fees. Surely there is some general professional control over the institution—i.e., a control which arranges the wards into which patients are to be sent and which sees that the formalities as regards the necessary certificates relative to the nature of the malady are rigorously observed. It is better, both in a moral and in a preventive sense, to have no hospital at all than to provide one in which careful medical supervision is not exercised. It is obviously desirable that those patients who wish it, and who can afford it, shall be able to procure the attendance of their own medical adviser, but it is also necessary that in addition to this there shall be a general supervision over the hospital administration exercised by a medical superintendent who may or may not be the local medical officer of health. As regards paupers who are suffering from infectious disease, it devolves upon the local board of guardians to provide both for their isolation and their treatment, but in the case in question no plea of poverty was lodged. The defendant had clearly an acquaintance with the admirable system of isolation accommodation which obtains in the metropolis, and while stating that the Folkestone incident had cost him £30 he added that a similar experience in London would have entailed an expenditure of less than 30*s*. But in this case it has to be borne in mind that the patient would have gone to one of the rate-supported hospitals of the Metropolitan Asylums Board where every necessity and some luxuries are provided free of charge. Had he sent his son to the London Fever Hospital which is largely supported by voluntary contributions he would not have escaped quite so cheaply. But the Folkestone case, if it has been correctly reported, should be carefully investigated, as maladministration at one fever hospital deals a serious blow at isolation accommodation as a whole, and a borough of the importance of Folkestone should aid rather than hinder sanitary progress.

THE NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.

THE last report of the National Society for the Prevention of Cruelty to Children is a record of progress and success. Fifty new centres of work have been established and the number of these now in operation amounts to 900. As was to be expected in the circumstances more cases of cruelty have been brought under notice, the increase being 2159 over the previous year's total. Notwithstanding this increase the percentage of prosecutions has fallen from 8·7 to 8·2. It is further interesting to note that the proportion of cases of violence has diminished also. From every point of view these facts are encouraging. They go to prove, indeed, the widespread existence of cruelty, but they also show that much of it is remediable and justify the method of the society which prefers to educate and to warn wherever it can thus attain its purpose, and reserves its powers of legal repression as a last resource. Financially the position of the society has improved. Its income is greater by £2381 as compared with that of the preceding year, and though its expenses have risen likewise there remains a surplus in hand of £266. The general plan of the society's operations to which we have briefly referred is too well understood to call for further explanation. Certain of its recent arrangements are nevertheless worthy of more than passing comment. In dealing with that form of cruelty which consists in neglect on the part of drunken parents a special mode of procedure has been adopted. Some 120 intemperate parents have been placed in retreats for inebriates, but the means employed for their reclamation do not end here. During this period of enforced sobriety they are kept informed of the improved condition of their children and are thus enabled to convince themselves of the advantages of abstinence. When liberated on licence or otherwise their after-care is, with the consent of the authorities, entrusted to agents of the society who practically exercise the functions which in cases of a like sort not associated with cruelty are discharged by the police, with this difference that they are able to render assistance in a more intimate and sympathetic way and to induce the relatives and friends of the former inebriates to coöperate in their work. It is still, of course, too early to judge of results, but there can be in our opinion no reasonable doubt that this method, if persisted in, gives better promise of success than any other which depends on the action of restraint alone. It recognises the soundest principle in the treatment of such cases the necessity of awakening hope and will power, and of confirming a purpose of reform in the mind which has allowed itself to be mastered by appetite. Even such a condition as this is capable of emancipation if only the will can be enabled to operate upon it. This, we believe, is the only mechanism of recovery in the case of the drunkard.

THE PREVALENCE OF SMALL-POX.

THE Local Government Board for Scotland intimates that during the period from August 1st to 15th inclusive 3 cases of small pox have been reported to them—viz., 2 from the burgh of Dundee and 1 from the burgh of Port Glasgow.

THE DISAPPEARANCE OF MISS HICKMAN.

UP to the present time nothing has been heard of Miss Hickman, M.D., whose disappearance we mentioned in THE LANCET of August 22nd. It is little use to speculate upon what may have happened; the communications to some of our contemporaries on the subject show too well where guessing upon no basis whatever may land presumably reasonable persons. Our hope is that the disappearance may be due to that curious condition of mentality which leads to "automatic wandering"—a condition that is perfectly familiar to psychologists. An account of an interesting manifestation of automatic wandering is given in our columns this week by Dr. W. S. Colman, and it seems possible that Miss Hickman's mysterious disappearance may supply another example. If so, the widespread publicity which has been given to her case should prove useful in leading to her being traced. In the meantime we reiterate our genuine sympathy with Miss Hickman's relatives in their grave anxiety.

THE report of the medical officer of health of Cape Colony for the week ending August 1st shows that during the week in question no case of plague was discovered throughout the colony. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on August 21st states that for the week ending August 20th there were 15 cases of bubonic plague and 9 deaths from the disease. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on August 26th states that for the week ending August 22nd there were 4 cases of plague and 3 deaths.

THE death at Marstrand, Sweden, on August 26th of Professor William Henry Corfield is announced. Dr. Corfield, who was well known as an authority upon public health, was Professor of Hygiene in University College, London, and Consulting Sanitary Adviser to the Office of Works. He was in his sixtieth year.

Captain C. E. P. Fowler, R.A.M.C., has been appointed Assistant Professor of Military Hygiene at the Royal Army Medical College.

THE LEBANON HOSPITAL FOR THE INSANE.—The fifth annual report of this hospital, which was founded near Beirut in 1896 by Mr. Theophilus Waldmeier, shows that during the past year, the third year since its opening, there have been admitted into the hospital 65 patients (40 men and 25 women). From last year there still remained 32 patients (17 men and 15 women), making a total of 97 under care during the year. Of this number 58 patients have been discharged (34 men and 24 women) of whom 11 were cured (five men and six women), 15 were improved (five men and 10 women), and eight died (six men and two women). At the end of the present year (March 31st, 1903) there remained in the hospital 39 cases (23 men and 16 women). The medical officer, Dr. O. Wolff, remarks that criminal acts under mental disorder seem to be more rare than in Europe.

THE PREPARATIONS FOR THE WAR IN SOUTH AFRICA.

THE report of His Majesty's Commissioners appointed to inquire into the military preparations and other matters connected with the war in South Africa was published on Wednesday last and is in many respects the most important document dealing with the British army that has appeared for 50 years. The report, which is in the form of a voluminous Blue-book, is signed by all the members of the Commission—viz., the Earl of Elgin, Viscount Esher, Lord Strathcona, Sir George Taubman Goldie, Field-Marshal Sir Henry Norman, Sir J. O. Hopkins, Sir John Edge, Sir John Jackson, and Sir Frederick M. Darley, while additional notes are appended by Lord Esher, Sir George Taubman-Goldie, Sir Frederick M. Darley, Sir John Edge, and Sir John Jackson.

The terms of reference were: "To inquire into the military preparations for the war in South Africa and into the supply of men, ammunition, equipment, and transport by sea and land in connexion with the campaign and into the military operations up to the occupation of Pretoria."

The Commissioners sat on 55 days to take evidence and heard 114 witnesses, whose evidence is recorded in two volumes annexed to the report. They found the instructions contained in the terms of reference much wanting in precision, but they interpreted their duty as being to make a full investigation upon all evidence available, while they did not consider it incumbent upon them either to arrive at a series of definite recommendations or to formulate a general scheme of army reform.

The report is divided into four sections: Section I. dealing with military preparations; Section II. with the supply of men; Section III. with ammunition, equipment, and transport; and Section IV. with War Office administration.

I. MILITARY PREPARATIONS.

Under the head of military preparations we have a thoroughly disquieting story. The state of unreadiness in which this country lay in the autumn of 1899, when the war in South Africa broke out, would be simply incredible if it were not proved by unimpeachable witnesses. Ever since the Jameson raid four years previously those best calculated to know had urged that nothing would so surely prevent a war in South Africa as the making of the British position impregnable. In spite of this, at the time when hostilities actually commenced, we seem to have been thoroughly short of men, of weapons, and of transport. The Commissioners find that the information supplied by the Intelligence Department was for all practical purposes neglected, and that we embarked on what we were warned would be a serious struggle with no general plan of campaign, the generals sent out to command receiving no definite instructions.

II. THE SUPPLY OF MEN.

The supply of men is dealt with under the five headings of (*a*) Regular Army, (*b*) Militia, (*c*) Volunteers, (*d*) Imperial Yeomanry, and (*e*) Colonial Contingents; and the medical point of interest lies in the fact that the witnesses seem to have generally been agreed that the physique of the troops first sent out was satisfactory. This is reassuring to know, particularly as assertions categorically in an opposite sense have been freely made and deductions have been drawn from those assertions as to the degeneracy of the British race. In the cavalry and artillery, which attract a somewhat better class of recruits, the physical standard was stated to have been good throughout, while the witnesses also agreed in praising the condition of the infantry regiments as they first arrived in South Africa. They concurred in attributing the high average of health and strength of the early drafts to the large proportion of reservists, who were far superior to the drafts of young soldiers who arrived later and who were admittedly not of the same class. Certain of the witnesses—Lieutenant-General Sir James Kelly-Kenny, Lieutenant-General Sir Archibald Hunter, and Professor A. Ogston—expressed a wider dissatisfaction with the physique of the troops, Professor Ogston saying that "some of the regiments, especially some of the militia regiments, were physically very inferior and more liable to disease ...... boys and weeds." General Kelly-Kenny referred to the physical defects due to the modern necessity of recruiting chiefly in the poorest districts of crowded towns. All the witnesses agreed as to the good marching powers of the infantry, which shows that the physique of many of the troops must have been fairly satisfactory, while the *morale* of the regular army has definitely improved.

The Commissioners report that "the true lesson of the war is that no military system will be satisfactory which does not contain powers of expansion outside the limit of the regular forces of the Crown."

III.—AMMUNITION, EQUIPMENT, AND TRANSPORT—THE ARMY MEDICAL SERVICE.

Under this section we find the references of the Commissioners to the Army Medical *personnel* and the army medical equipment in the war. The outbreak of enteric fever at Bloemfontein, which led to severe criticism of the Army Medical Service, resulted in the appointment of a Royal Commission to inquire into the care and treatment of the sick and wounded in the South African campaign. The report of this Commission having been published the present Commissioners saw no reason for re-opening inquiry in that direction, but they have considered it to be their duty to investigate the *personnel* and equipment of the Royal Army Medical Service as tested in the war. It was proved conclusively by evidence on all sides that the Army Medical Service was hopelessly undermanned, although the individual work done by the officers was praised with almost equal unanimity. The undermanning of the Service was shown to be due to the unpopularity into which it had fallen under the old *régime* whereby there were not sufficient candidates presenting themselves to receive the vacant commissions. Surgeon-General Jameson, with great loyalty to his service, did not consider that the lack of competition for commissions had lowered the standard of the Army Medical Service, but some of the civilian medical men who had had experience in South Africa differed sharply from him, notably Professor Ogston and Sir Alfred Downing Fripp. Lord Roberts and Surgeon-General Sir William Wilson thought that special sanitary experts should be attached to the army, the Commander-in-Chief giving as an instance of this need that he found hospital tents pitched upon one of the chie [illegible] tein. The evidence [illegible] been understood, not [illegible] Medical Service as by [illegible] commanding officers [illegible] been saved.

With regard to the army medical equipment we have the same difference of opinion shown in the evidence given by officers of the Army Medical Service and that given by the civilian medical men with war experience. To quote some of Sir Frederick Treves's words is enough to show that the supplies furnished by the Medical Department were certainly antiquated. "We were carrying about with us instruments which I should have thought would only be found in museums. ...... We took about medicines that were in bottles in the most cumbrous form and that had been in the bottles 20 years possibly. ...... The equipment of the field hospital is based upon certain tabulated forms and is supposed to be quite complete in itself and the result is that in the many journeys we had to make in Natal and on the banks of the Tugela we were dragging with us what I suppose amounted to tons of useless material. ...... We were dragging about, indeed, that which in no circumstances would have to be used in South Africa."

The Commissioners report that the evidence left the impression upon them that the Army Medical Service as a whole had not either as regards *personnel* or equipment been maintained at the high standard which in so vital a matter is essential, but they added that in no way was there any reflection upon the devotion or ability of the individual members of the service and, as a matter of fact, many witnesses said that the "skill, zeal, and devotion to duty of our medical officers during the war was beyond all praise." The particular words quoted are those of General Sir Charles Warren, but in using them he expressed the feeling of many others.

IV.—THE WAR OFFICE ORGANISATION.

The section of the report dealing with the War Office organisation sufficiently shows that the various bodies and individuals responsible for the affairs of the War Office and the conduct of a war have no clear definition of their duties to guide them. The War Office Council is informally constituted. The Army Board met regularly and did useful work within what it conceived to be its scope, but the exact duties of the Commander-in-Chief appeared to defy accurate description.

The country will read this report with feelings of considerable impatience and will, in particular, note that the Commissioners do not consider that steps are being taken to remedy the deplorable muddle which has been revealed. We are glad to think that, as far as the Army Medical Service is concerned, real reform has commenced.

Looking Back.

FROM

THE LANCET, *SATURDAY*, AUGUST 27, 1825.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

GERMAN JOURNALS.

History of a Patient from whom THREE HUNDRED AND NINETY FIVE NEEDLES *were extracted; communicated by* Dr. OTTO, *of Copenhagen.*[1]

SOME notice has already been taken of this case by the journalists of this country, but it was mentioned in such a superficial manner that its credibility might have been questioned with great propriety. We confess that, at first sight we considered it a mere trick, played off upon some well-meaning but weak individual for the purpose of exciting the astonishment of the public; and had not the history of the case, as we now publish it, emanated from such respectable authority as Dr. OTTO, (the mention of whose name is sufficient to ensure for it attention and authenticity,) we [illegible].[2] [illegible]ed the patient,[3] [illegible]ng of blood, and so low was she reduced, that no one who saw her thought that she could recover.

On the 2d of February, a tumour, which had appeared just beneath the umbilicus was examined, and was found to consist of three principal divisions, or lobes; sedative and emollient cataplasms were applied to this, but the pain was not assuaged; the patient appeared to be gradually sinking. She remained very low until the 12th of February, when Professor HERHOLDT considered it necessary to make a deep incision into the swelling, in order to let out any pus that might have been contained in it. No matter came out, and but very little blood; he then examined the wound with a sound, and felt it strike against something, which communicated the sensation to the hand of its being a metallic body; with a forceps he laid hold of it, and, to his great surprise, drew out a *needle.* All the symptoms gradually subsided, but soon after returned again with a fresh vomiting of blood. The abdomen was again examined, and another tumour was discovered in the left lumbar region, the slightest touch of which occasioned great pain.

On the 15th of February, an incision was made into it, and a black oxydised needle extracted from its centre. From this time, that is to say, from the 12th of February 1819 to the 10th of August 1820, a period of eighteen months, the patient experienced pains in different parts of the body, supposed to be occasioned by needles deeply seated, and during that time two hundred and ninety-five needles were at different intervals extracted.

Many of them were broken, or corroded, some being without points, others without eyes; some were large and black, like the pins used for dressing the hair, and others were small. The brass needles retained their proper polish, but all the others were black and oxydised. They made their appearance at different intervals; sometimes days, weeks, and months intervening between the times of the extraction.

By the employment of antispasmodic medicines, cold bath, blisters, and so on, the patient gradually became better, and on the 8th of March, 1821, she appeared to be quite relieved, so much improved was she, that Professor Herholdt considered her quite well. Thus she remained up to this time, when a new series of sufferings commenced; a painful tumour showed itself in the right armpit, which increased to a great size, and was so very painful that her life was considered in great danger. This swelling also contained needles, and so great was the number, that from the 26th of May to the 10th of July, 1822, *one hundred* were extracted, making, with the two hundred and ninty-five before mentioned, the enormous number of *three hundred and ninety-five!!!*

---

[1] An extract only is given. The full account occupies nearly seven columns of THE LANCET.

[2] Vide "Looking Back" in THE LANCET, Dec. 21st, 1901, page 1743.

[3] Rachael Hertz.

The patient is marked with scars in various parts of the body, and is at present in Frederick's Hospital, at Copenhagen, where she has been visited by Dr. OTTO, and thirty other persons, at different times, who are willing to verify the assertions herein contained respecting her.

It is supposed, by Professor Herholdt and Dr. Otto, that she must have swallowed the needles during her delirious fits.

REPORT OF THE COMMISSION ON THE NATURE, PATHOLOGY, CAUSATION, AND PREVENTION OF DYSENTERY AND ITS RELATIONSHIP TO ENTERIC FEVER.

IN August, 1900, the Secretary of State for War appointed a commission, consisting of Colonel J. Lane Notter, R.A.M.C., Lieutenant-Colonel D. Bruce, R.A.M.C., and Dr. W. J. R. Simpson, to investigate the circumstances connected with the occurrence of dysentery and enteric fever in the late South African campaign, and we are now in possession of the valuable report drawn up by the above members that has been presented to Parliament. The commission arrived in Cape Town in the first week in September. They then proceeded to Bloemfontein, Kroonstad, Johannesburg, and Pretoria. Next a laboratory was arranged at the latter place by Colonel Bruce, whilst Colonel Notter and Dr. Simpson went to Komatiport, and on their return journey inspected some 19 other camps. Subsequently one of the members of the commission was employed in connexion with the outbreak of plague in Cape Town, whilst the others visited various camps and later gave their services for general sanitary and plague purposes. When the plague ceased to spread Dr. Simpson inspected the same ground that his two colleagues had gone over. The above report embodies the results of his observations. To Colonel Bruce was allotted the laboratory work and to Colonel Notter and Dr. Simpson the matters relating to the inspection of camps, water-supply, &c.

In Part I. we have detailed the pathological results of the commission. These are illustrated by some beautiful plates. Regarding the relationship of the various organisms that have been held to be causative of dysentery Colonel Bruce's conclusions are mainly negative, for he found no such relationship to amœbæ, nor to any species of micro-organisms, whilst no relation was found between dysentery and enteric fever.

Part II., drawn up by Dr. Simpson, gives a very full description of the general history of the outbreaks of dysentery and enteric fever that occurred. He first of all reviews these two diseases as they occurred among the civil population of Cape Colony and Natal, and shows how the very insanitary environment as regards drainage, soil, disposal of the excreta, and water-supply furnished ample sources for their spread. Attention is drawn to the flies swarming from the latrines to the nearest unprotected food supply. The circumstances of the occurrence of dysentery and enteric fever in the South African army are then gone into. How great was the amount of sickness can be gathered from the accompanying table.

Dysentery.

Period.	Admissions.	Deaths.	Percentage of deaths to admissions.
First year...	11,143	546	4·9
Second year	13,131	427	3·2
Enteric Fever.			
First year...	15,655	3,647	23·2
Second year	15,463	2,530	16·3

The comparative absence of the fatal dysentery which usually attacks armies in the field was probably due to the excellent food arrangements of this campaign, our soldiers obtaining their rations perfectly fresh and thoroughly cooked. Dr. Simpson, however, points out that each tin should not contain more than one day's ration; if it does the soldier has an extra weight to carry, whilst the ration itself is liable to become decomposed; to this cause some proportion of the bowel complaints was due. The chief cause, however, was probably the drinking of surface water and especially the water of rivers holding in suspension a large amount of mineral and organic matter, such as is the case in the Orange, Modder, Vaal, Eland, and Crocodile rivers. Another cause is judged to be the sand lodging on the food during the dust-storms.

Dr. Simpson next details the circumstances, as far as he could learn them, connected with the occurrence of dysentery and enteric fever at Modder river, at Paardeberg and Bloemfontein, at Pretoria, and amongst the British prisoners at Waterval. Regarding the great epidemic of enteric fever at Bloemfontein, in which during seven weeks there were 4280 cases, or a 10·6 per cent. rate of incidence, the chief factors were, in his opinion, to be found in the following circumstances: An army arriving at Bloemfontein, predisposed to disease through the fatigues and privations it had undergone, and a portion of it being at the same time infected with dysentery and enteric fever; the troops encamping near farms that had been in recent years centres of enteric fever; the cutting off suddenly by the enemy of the recently introduced *filtered* water-supply for the bulk of this army and the consequent falling back on the former insufficient and condemned source. With respect to the occurrence of the two diseases at Waterval, we see by the report how different was the treatment of British prisoners at the hands of Dr. H. P. Veale and Dr. R. von Gernet. The sheds in which our men were confined were exposed to the most insanitary conditions, which were reported on by Dr. P. H. Haylett, who was in immediate charge, to his chief, Dr. Veale. His recommendations were not endorsed by the latter gentleman and Dr. Haylett, finding that he could do nothing for our unfortunate soldiers, resigned, and was succeeded by Dr. von Gernet. The latter medical officer at once reported directly to the Boer authorities, as the result of which Dr. Veale's connexion with the hospital ceased. Dr. von Gernet was placed in sole charge and the epidemic of typhoid fever and the prevalence of dysentery rapidly disappeared. Lord Roberts, always ready to acknowledge good service, referred in eulogistic terms to Dr. von Gernet's services to our men.

The subject of the sanitary prevention of enteric fever and dysentery must ever be a difficult one, practically considered, in an army in the field. However excellent the theoretical directions may be, the fatigue undergone by the soldiers in their long marches and the unexpected events that are bound to crop up will prevent the systematic carrying out of the necessary details. How can men be expected after an exhausting day's work to dig trenches, to filter and to boil water on their arrival in camp? Human nature being what it is, how can we expect thirsty men to wait for this preliminary treatment of their water? And if a given regiment stays but a short time in the camp the same precautions will, in all probability, not be taken as would be the case if it were there for some length of time. But these difficulties are not always insurmountable. Dr. Simpson indicates how much may be done. He points out that in our army in South Africa there was "*no specially trained and well organised executive by which the recommendations made to the commanding officer of a company, or unit, or brigade, or division, by the medical officer, or instruction laid down in the regulations, can be carried out.*" Though the paper regulations were excellent the practical aspect of the question was left out of sight and not *sufficiently* provided for. It must be confessed that the late Commander-in-Chief was responsible for the minor position occupied by the sanitary officer, inasmuch as, in his opinion, he was stated to be as a general rule "a very useless officer." Sanitation under the control of a sanitary *officer* was designated as a "fad." The responsibility for the above unsatisfactory state of affairs, Dr. Simpson states, can certainly not be placed on the Royal Army Medical Corps. To remedy these defects Dr. Simpson would divide the Corps into two branches: (1) the medical branch; and (2) the health branch. The members of the latter division should undergo a special training, theoretical and practical, in military preventive medicine and public health work; and as members of this branch should also be included a few selected officers of the Royal [illegible] in regard to sanitary construction [illegible] with an army in the field he would [illegible] officers responsible severally for the lines of communication, and for each brigade, and at head-quarters a chief sanitary officer and sanitary engineer. Among the more minute of his elaborate recommendations is one that in campaigns in warm countries where dust storms and flies are always prevalent a "mehtar" establishment from India should be attached to each unit with the duty to cover up the excreta immediately after the latrine has been used.

Colonel Notter does not agree with many of the statements in Part II. of the report, and his words of dissent are very clear and definite. For instance, in his opinion undue stress is laid upon the absence of special sanitary returns, and his objection that elaborate statistics are quite impossible in the case of rapidly moving troops is certainly valid. Again, he thinks that owing to the laborious duties of our troops—so laborious that in many cases they had only one night per week in bed—too much is made of a failure to put a guard over a particular source of water-supply, and the same criticism is made on Dr. Simpson's statement that "we have seen guards placed on water which soldiers should drink, but we have never seen guards placed on water which is dangerous and which ought not to have been drunk." With regard to the incidence of disease at Pretoria in connexion with the water supply, Colonel Notter says that Dr. Simpson appears to have relied upon facts which did not, as far as he knows, come within the cognisance of the commission. The facts, again, concerning the ill-health of our men at Waterval Colonel Notter regards as hardly germane to the inquiry, and he also states that they were only submitted by Dr. von Gernet to Dr. Simpson and not to the committee as a whole. This, of course, is a very serious objection to Dr. Simpson's conclusions, as it is well known that Dr. Veale has traversed the statements made by Dr. Haylett and Dr. von Gernet in a letter addressed to our columns.[1] Regarding the proposal of the formation of a joint corps of the Royal Army Medical Corps and Royal Engineers for sanitary purposes, Colonel Notter holds this to be impracticable, and brushes away the suggestion in a few summary words. But by doing so he does not settle the question, and in our opinion much benefit might result from the [illegible] "a high sanitary officer" independently of the principal medical officer. This latter proposition would be a fatal blot on the project. There are other details of Dr. Simpson's report to which exception is taken, but these are the most important.

The sturdy differences of opinion between two such recognised authorities as Colonel Lane Notter and Dr. Simpson do not lessen the interest of a most valuable report and we hope that some at least of the points that have been raised will receive adequate attention. On mere pecuniary grounds a discussion is warranted. Dr. Simpson details the cost that enteric fever in the South African campaign has entailed. He shows the monetary loss to the Government to be as follows: (1) If a soldier died from enteric fever and had to be replaced by a trained soldier the cost would amount to £87; (2) if he recovered and convalesced in South Africa and was fit after four months to rejoin his regiment it would come to £57; and (3) if he recovered and was invalided home and was replaced by another man it would be £108. There were in the late war 31,118 cases of enteric fever. The cost of these cases, in their several classes as above comes to £2,724,000. To this has to be added the cost of the extra hospital staff, equipment, and transport, bringing the sum total to at least £3,500,000, if not £4,000,000. And, be it noted, this large sum of money only refers to the cases of enteric fever and not to those of dysentery and refers, moreover, only to the cheapest soldier available, not including the artilleryman, yeoman, volunteer, or colonial.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 9096 births and 4548 deaths were registered during the week ending August 22nd. The annual rate of mortality in these towns, which had been 14·4, 14·3, and 15·7 per 1000 in the three preceding weeks, was again 15·7 per 1000 last week. In London the death-rate was 14·4 per 1000, while it averaged 16·3 in the 75 other large towns. The lowest death-rates in these towns were 4·0 in Hornsey, 4·9 in King's Norton, 6·9 in Reading, 7·0 in Stockton-on-Tees, 7·1 in Barrow-in-Furness, 7·9 in Derby, and 8·6 in Willesden and in West Bromwich; the highest rates were 21·3 in Hull, 21·8 in Newcastle-on-Tyne, 22·1 in Liverpool, 22·6 in Bolton, 23·5 in Wigan, 25·5 in Sheffield, 26·3 in Middlesbrough, and 32·6 in Bootle. The 4548 deaths in these towns last week included 1006, which were referred to the principal infectious diseases, against 591, 717, and 886 in the three preceding weeks; of these 1006 deaths 762 resulted from diarrhœa, 84 from measles, 54 from whooping-cough, 36 from scarlet fever, 35 from diphtheria, 33 from "fever" (principally enteric), and two from small-pox. No death from any of these diseases was recorded in Croydon, Hornsey, Hastings, Bournemouth, Great Yarmouth, Handsworth, West Bromwich, King's Norton, Barrow-in-Furness, Stockton-on-Tees, and West Hartlepool; the highest death-rates from these principal infectious diseases were recorded in Norwich, Hanley, Aston Manor, Liverpool, Bootle, Wigan, Warrington, Salford, Sheffield, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Aston Manor, Stockport, Warrington, Blackburn, Sheffield, Middlesbrough, Sunderland and Merthyr Tydfil; from whooping-cough in Wigan and Oldham; and from diarrhœa in Norwich, Hanley, Aston Manor, Grimsby, Birkenhead, Bootle, Wigan, Bury, Sheffield, and Hull. The mortality from scarlet fever, from diphtheria, and from "fever" showed no marked excess in any of the large towns. Small-pox caused one death in Gateshead, and one in Newcastle-on-Tyne, but not one in any other of the 76 large towns. The Metropolitan Asylums hospitals contained 52 small-pox patients on Saturday last, August 22nd, against 66, 48, and 45 on the three preceding Saturdays; 13 new cases were admitted during the week, against nine, four, and nine in the three preceding weeks. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital, which had been 1726, 1771, and 1758 at the end of the three preceding weeks had further increased to 1797 at the end of last week; 225 new cases were admitted during the week, against 237, 216, and 215 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 110, 107, and 120 in the three preceding weeks, were 120 last week and were 41 below the number in the corresponding period of last year. The causes of 37, or 0·8 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, Bradford, Leeds, and in 48 other smaller towns; the largest proportions of uncertified deaths were registered in Reading, Rotherham, and Stockton-on-Tees.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 14·7, 14·6, and 15·4 per 1000 in the three preceding weeks, fell to 15·1 per 1000 during the week ending August 22nd, and was 0·6 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·8 in Greenock and 13·5 in Edinburgh to 16·4 in Paisley and 17·2 in Dundee. The 493 deaths in these towns included 65 which were referred to diarrhœa, nine to whooping-cough, nine to "fever," six to diphtheria, six to measles, and one to small-pox. In all, 96 deaths resulted from these principal infectious diseases last week, against 63, 60, and 69 in the three preceding weeks. These 96 deaths were equal to an annual rate of 3·0 per 1000, which was 0·5 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 28, 34, and 45 in the three preceding weeks, further rose to 65 last week, of which 38 occurred in Glasgow, eight in Dundee, six in Edinburgh, and five in Paisley. The deaths from whooping-cough, which had been 15, five, and 12 in the three preceding weeks, fell last week to nine, of which four occurred in Glasgow and two each in Edinburgh and Dundee. The fatal cases of fever, which had been five, six, and three in the three preceding weeks, rose last week to nine, of which five occurred in Glasgow and two each in Edinburgh and Dundee. Of the six deaths from diphtheria three occurred in Edinburgh and two in Glasgow. Three of the six fatal cases of measles occurred in Glasgow. The death from small-pox belonged to Greenock. The deaths referred to diseases of the respiratory organs in these towns, which had been 69, 54, and 50, numbered 51 last week, and were 17 below the number in the corresponding period of last year. The causes of 17, or 3·4 per cent., of the deaths registered in these eight towns last week were not certified.

---

[1] THE LANCET, Dec. 8th, 1900, p. 1675.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·3, 18·2, and 18·0 in the three preceding weeks, further rose to 22·8 in the week ending August 22nd. During the past four weeks the death-rate has averaged 19·3 per 1000, the rates during the same period being 13·8 in London and 13·5 in Edinburgh. The 166 deaths of persons belonging to Dublin registered during the week under notice were 35 more than in the preceding week and included 12 which were referred to the principal infectious diseases, against five, eight, and seven in the three preceding weeks; of these, 10 resulted from diarrhœa, one from diphtheria, and one from whooping-cough, but not one from small-pox, measles, scarlet fever, or "fever." These 12 deaths were equal to an annual rate of 1·7 per 1000, the death-rates from the principal infectious diseases last week being 2·6 in London and 2·2 in Edinburgh. The fatal cases of diarrhœa, which had been four, five, and two in the three preceding weeks, increased to ten last week. The 166 deaths in Dublin last week included 36 of children under one year of age and 41 of persons aged 60 years and upwards; the deaths of infants showed an excess of eight, and those of elderly persons an excess of six, as compared with the respective numbers recorded in the preceding week. Eight inquest cases and four deaths from violence were registered and 53, or nearly a third, of the deaths occurred in public institutions. The causes of six, or 3·6 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

THE REPORT OF THE COMMISSION ON THE WAR IN SOUTH AFRICA.

THE Commissioners appointed to inquire into the military preparations for the war in South Africa, "into the supply of men, ammunition, and equipment, and transport by sea and land, in connexion with the campaign, and into the military operations up to the occupation of Pretoria," have issued their report. It is a document of great length, covering 300 foolscap pages. The Commission, of which the Earl of Elgin was president, sat on 55 days to take evidence. They examined 114 witnesses and put 22,200 questions, the answers to which are recorded in two volumes of minutes of evidence. Dealing with the Army Medical Corps the report says:—

> It is desirable that the officers of the Army Medical Corps should have opportunity of maintaining their professional skill at least *on* a level with that of the average surgeon in civilian practice. It should be considered also whether arrangements, such as those existing in Germany, should not be made in time of peace with medical men of experience in ordinary practice to secure their services on occasions which shall be declared to be national emergencies.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned Staff Surgeons have been promoted to the rank of Fleet Surgeon in His Majesty's Fleet (dated August 21st, 1903):—Edward John Morley, Hugh Winckworth Macnamara, Joseph Henry Whelan, John Patrick Joseph Coolican, Edgar Ralph Dimsey, D.S.O., Joseph R. McDonnell, and Hamilton Meikle.

The following appointments are notified:—Staff Surgeons: C. J. Mansfield to the *President*, additional, temporary (to date August 17th), and J. Bradley, to the *President*, for three months' hospital study (to date August 19th).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majors to be Lieutenant-Colonels (dated August 4th, 1903):—Horace Lynden-Bell, J. Riordan, R. H. Firth, R. H. Moore, A. E. Tate, O. E. Faunce, and H. J. Wyatt.

Colonel William McWatters retires on retired pay (dated August 26th, 1903); Major G. T. H. Thomas retires on retired pay (dated August 26th, 1903); Captain G. E. Hughes retires from the service receiving a gratuity (dated August 26th, 1903); Lieutenant W. O. Stevenson resigns his commission (dated August 26th, 1903).

Major E. J. Lawless on having relinquished his temporary commission for service in South Africa is granted the honorary rank of Major in the Army, with permission to wear the uniform of the corps (dated August 7th, 1903).

Captain H. H. Norman is granted leave out of India for six months on medical certificate. Lieutenant-Colonel J. Coats, retired list, is selected for duty with the troops at Ayr. Major F. McDowell proceeds to Madras. Captain C. S. Smith is appointed as an attached officer to the Coldstream Guards. Lieutenant-Colonel G. E. Twiss is ordered to the Royal Victoria Hospital, Netley, for duty, vice Lieutenant-Colonel F. H. Treherne.

ARMY MEDICAL RESERVE OF OFFICERS.

Lieutenant W. J. Reid, Sherwood Foresters Volunteer Infantry Brigade Bearer Company, to be Surgeon-Lieutenant. Dated August 26th, 1903.

DEATHS IN THE SERVICES.

Surgeon-Major-General Thomas Norton Hoysted, A.M.D., on August 12th at Sidcup, in his sixty-fourth year. He entered the service in 1855, was promoted surgeon in 1871, surgeon-major in 1873, surgeon-major-general in 1892, and retired in 1894. He served with the 59th Regiment at the operations before and at the capture of Canton in December, 1857 (medal with clasp). He took part in the Indian Mutiny campaign at the last advance into Oude under Lord Clyde in 1858, including the capture of Fort Ameetie (medal), and also served in the Afghan war in 1878–79 and was present at the capture of the Peiwar Kotal (medal with clasp).

AMBULANCE SURGEONS HONOURED.

The Prince of Wales, Grand Prior of the Order of St. John of Jerusalem in England, has conferred the special medal for meritorious service during the South African war on Dr. J. Johnston and Dr. J. Hilton Thompson, ambulance surgeons to the Bolton Corps of the St. John Ambulance Brigade. During the South African and China wars Bolton furnished 137 ambulance men, the largest number from any provincial town.

Correspondence.

"Audi alteram partem."

THE TRINIDAD EPIDEMIC.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 22nd, p. 544, reference is made in the account of the proceedings of the Section of Tropical Diseases at the meeting of the British Medical Association at Swansea to the communication of Dr. J. R. Dickson and Dr. C. F. Lassalle, entitled "Varioloid Varicella in Trinidad." In this communication the outstanding features of the disease are stated to be (1) the occurrence of a second attack in persons recently recovered from the disease, (2) the successful vaccination of persons recently recovered from the disease, and (3) attacks occurring in recently vaccinated persons. May I point out in reference to the above statements that for eight months prior to my official visit in February of this year to report on the nature of the malady the disease in question had been declared to be chicken-pox pure and simple. Now true chicken pox, or *varicella*, exists in Trinidad just as elsewhere, and within my own knowledge cases of real chicken-pox were placed in the same wards as cases of this so-called "varioloid varicella" (*alias* small-pox). It is not surprising therefore to know that such patients became infected and after the usual incubation period developed small-pox. These patients thus *appeared* to have had a second attack, the first attack being chicken-pox and the second small-pox. With regard to the successful vaccination of persons recently recovered from the "disease" one need only remark that successful vaccination performed in those of the cases that were true chicken-pox is only what might be expected. Lastly, as to (3) which states that attacks occur in recently vaccinated persons, I may say, in the first place, that vaccination would be no preventive in those of the cases that were chicken-pox and, in the second place, that the expression "recently vaccinated" requires accurate definition. Thus, at the time that I was holding my inquiry in Trinidad the surgeon-general of the colony cited three cases where the rash of the disputed disease had appeared *the day after the vaccination*[1] as a proof of the non-influence of vaccination. Further, the official issue of a circular by the surgeon-general in May last, stating that vaccination prevents the disease, as noted in THE LANCET of June 20th, p. 1750, and in the *British Medical Journal* of July 25th, shows that after many denials the medical officials of the colony acknowledge the disease to be small-pox, although the horrible qualifying adjective "small" was omitted in the circular in question and only the word "pox" was used.

I have been subjected to much personal abuse in the press of the colony of Trinidad and by high Government officials (medical) in other colonies for daring to state this disease to be small-pox. Force of circumstances, however, have now compelled recognition of the fact of vaccination being a preventive—a fact pointed out by me in my report as long ago as March and characterised at the time by the Trinidad authorities as the product of my fertile imagination. In spite of all this in Trinidad the disease is still the "pox" or, forsooth, "the varioloid varicella."

Experience in the United States of America and in Canada, and more recently at Cambridge, has shown that epidemics of variola, just as any other infectious disease, vary in virulence in different outbreaks. Further, history seems to show that this is, to some extent, a cyclic variation.

I am, Sirs, yours faithfully,

J. F. E. BRIDGER.

St. Mary's Hospital, W., August 25th, 1903.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—In a letter of criticism, otherwise singularly fair and free from acerbity, Dr. A. W. Gilchrist in THE LANCET of August 15th, p. 493, says: "Natural selection, indeed, may be regarded as the scientific conception of the agency by which the wicked are entirely swept away and the good are rewarded—just as Dr. Reid and Dr. Niven would have it." Might I ask Dr. Gilchrist to point out one sentence of my own or of Dr. Reid's which could lend itself to this construction? Following Mr. Herbert Spencer I have said that the *fit*, other things being equal, as a rule survive and continue the race. Of course, the statement that the good survive may be a fact, but I certainly do not know it to be so.

In answer to the question why the views of Professor Kassowitz have not been mentioned I can only say for myself that the truth of the Darwinian doctrine of descent is not under discussion. Where the two schools represented in this controversy differ is in the cause of one of its factors —variation. However it be, and without in the least trying to indicate *how*, the neo-Darwinians point out that in higher organisms genetic variation is essentially connected with sexual reproduction. No doubt they do say that in the last analysis all variations are due to acquirements made by the germ cells themselves. But they do not know, nor do they try to show, why a germ should vary in one of a million or a billion or a trillion possible directions more than another. The neo-Lamarkians, however, have gone further. They do try to show and claim that they have proved that acquirements made by a parent organism are transmuted into variations in the germ cells and that these variations are transmitted to future generations by the offspring derived from these germ cells. But not content with that they have taken a bolder step and claim that external agents, such as alcohol circulating in the blood, acting on the germ cells and on the parent organism at the same time, will cause these germ cells to proliferate into offspring having inborn variations similar to the modifications which the agent caused in the parent. Now it must be noticed that this latter case is not a problem of heredity, for nothing is supposed to have been transmitted from the parent to the offspring. The neo-Darwinians do not deny that parental acquirements or external agents circulating in the blood may not so influence the germ cells as to cause them to proliferate in this or that possible or probable direction. Nor can they deny, nor would they try to deny, that this possible direction will not be of the same kind or in the same direction as that made by the parent. To try to do so would involve them into proving a universal negative which is manifestly impossible. What they do deny is that if ever such a thing does take place it must be so rare that no indisputable instance of it, in all the trillions of organisms that inhabit and have inhabited this earth, has yet been recorded, and thus as a factor in evolution may be neglected.

Dr. Gilchrist wonders why he finds "no allusion to Professor Weismann by those who so strenuously support his views" and proceeds to say that "this omission on the part of Dr. Reid and Dr. Niven is unkind to say the least of it." No one, I suppose, would try to decry the brilliancy of Professor Weismann; but if I understand his views correctly he disbelieves in the transmission of acquired traits; he believes in the continuity of the germ plasm; and he has, without proof, peopled this germ plasm with a whole host of mysterious ids, determinants and biophores, and to these he traces the causes of variation. As Professor Weismann was anticipated in his views on the non-transmissibility of acquired traits by Pritchard, among others, those who hold the same view must not therefore be called followers of Weismann, nor yet when he teaches that variations are inborn, for he was also anticipated in this. He has built an immense superstructure by aid of his biophores, &c. These mysterious bodies may or may not exist. I do not know and I do not know any other body who does. I do not deny their existence—I cannot; but before I admit his conclusions I ask for some evidence, even though it be of the dimmest, the most shadowy, of the existence of these wonderful and astonishing bodies. The doctrine of the transmissibility of acquired traits is one thing, the attempt to show *how* inborn characters are transmissible is quite another. No doubt if this could be proven it would add additional evidence to the gigantic mass already existing to prove that acquired traits are not transmissible, but its failure is no disproof. The speculations of Professor Weismann seem to me to be simply a piece of guesswork and nothing more.

I need say very little about Dr. Gilchrist's remarks as to "Ehrlich's side-chain and the light it throws on the question of heredity." Evidence proving the existence of cytophiles, haptophores, &c., has already been asked in your columns and has not as yet been given. Until that evidence is forthcoming speculation will not help us much. Dr. Gilchrist, however, has evidence, convincing evidence, to prove that acquired traits are transmissible Will he give us that evidence in your columns? Many beside myself will be glad to see it, to examine it, and if found convincing to admit it. If it is indisputable it will get us out of this position of everlasting doubt and we shall be thankful to him.

I am exceedingly glad that the amount of difference separating the views of Dr. J. Wiglesworth from those of my own is getting less and less. We have got so far as to agree, first, that acquired traits are not transmissible; secondly, that parental drinking does not cause increased desire for alcohol in the offspring; and thirdly, that every disease is a cause of evolution against itself. One thing still separates us and that is the action of external agents when affecting both the germ cells and the parent organism at the same time. Formerly it was pointed out in arguments like these that external agents acting on the germ cells and parent organism could not cause changes in the future offspring similar to those produced in the parent, seeing that there were neither bones, muscles, nor nervous tissue existing in the germ cells. Dr. Wiglesworth for this difficulty has an exceedingly subtle explanation, and it is this. In the germ cells there are different kinds of molecules which determine the development of all the different kinds of tissues in the body, and the molecules which determine the development of the cerebral tissues are the latest formed portions in time of the germ plasm and are therefore more unstable than the others. Any injurious agent, therefore, circulating in the blood will adversely modify the development of the cerebral centres. I pointed out in a former letter that an alteration such as this was simply a variation, or, rather, that the offspring varied in a *definite* direction. Dr. Wiglesworth, however, claims that it is simply a *special* influence, but as it must always be the nervous centres which suffer first, for they are the most unstable, it does not seem to matter much what term we use. If I am right and that a variation has been produced, and as variations are admitted, I believe, by everyone to be transmissible, the child developed from one of these germs would tend to transmit this variability, and as it would increase generation after generation it follows that the race would become more and more mentally unstable—a condition, I humbly submit, that has not been proved. However, neglecting this argument, might I ask Dr. Wiglesworth for some evidence proving the existence of these marvellous molecules? I do not deny their existence, as I know nothing about them. It seems to me, though, that there is not much to choose between the speculations of Professor Weismann and those of Dr. Wiglesworth: the one peoples his germ plasm with biophores, the other with molecules; both seem to be gropings in the dark. As opium, a deleterious agent and a cause of evolution against itself, is used by millions of people, it must also damage the molecules of the germ cells which determine the development of the cerebral centres and so be a cause of mental instability in the offspring just as much as alcohol is supposed to be if Dr. Wiglesworth's reasoning is correct. Will Dr. Wiglesworth undertake to prove that the offspring of "opium eaters" are more mentally unstable than the offspring of those of the same race who do not use it.

---

[1] Vide Royal Gazette of Trinidad.

I unreservedly admit that I believe "that offspring developed from germ cells may be influenced in this or that possible or probable direction by injurious agents—for example, alcohol—circulating in the parent's blood." I submit, however, that I thereby in no way "concede the main point under discussion." I *do not* know, and I am inclined to believe that no other one knows, why a germ should vary in one of a billion possible directions more than another, and certainly I do not know why a germ should vary in the direction of being injured rather than in the opposite direction when exposed to poisons circulating in the blood. I think therefore it will be evident that I do not in the least differ from the views of Dr. Reid and that certainly the views of Dr. Wiglesworth and my own do not agree.

It is a pity that Dr. C. Mercier did not succeed in being funny, seeing that his logic (marvellous logician though he may consider himself to be) was most illogical. May I point out without traversing his whole letter and confining myself to his first objection that it is simply "by a parity of reasoning" that one is able to explain the long neck of the giraffe.

I am, Sirs, yours faithfully,

Liverpool, August 23rd, 1903. C. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—As this discussion was begun by me, perhaps, before it goes any further, I may be permitted to make an explanation and, in some sort, an apology. I have been accused of arrogance. The indictment is true. I have not only been arrogant but worse when dealing with a subject which, because scientific, should be handled with calmness and, because obscure and difficult, with modesty. I can only plead, as I have done before, that I knew no other way to shake a confidence which seemed to me without justification. In future I shall endeavour to behave with such sweet reasonableness as I hope will satisfy even the suave but exacting soul of Dr. C. Mercier. He shall not again imagine that I regard him in the light of a worm or even a black-beetle. He gives Dr. C. R. Niven and myself instruction in logic. I am sure that he is thoroughly competent. But why *then* does *he* ask *us* for information? He asserts that alcohol, diseases, &c., affecting parents cause offspring to be degenerate. Indeed, he is one of the faithful to whom I alluded in the last passage of my last letter who, in the midst of a scoffing and sceptical world, still adhere to the time-hallowed time-eroded doctrine of the transmission of acquirements. We have given reasons for believing that the evidence is unsatisfactory. In all humility, what is the nature of the information he asks? Does he really—after all that logic—expect us to prove a negative? Instead of confining himself to personal matters and logic, will he not tell us exactly what the "counteracting circumstances" are? As to the *petitio principii*, the very definition of a variation involves the supposition that it had its origin in a variation of the germ plasm. Can Dr. Mercier frame a definition which does not involve that supposition? As to gravitation and the calf muscles, the idea underlying his argument is this, that because one apparently incredible thing has been proved by irrefutable evidence, therefore we should believe other incredible things without evidence. That line of reasoning is even older than Newton. As to the legs of kittens and puppies, if he will produce the leg of one which is exactly like the leg of another, we will grant his argument. As to the necks of giraffes, certainly, if giraffes stretch their necks and the stretching is transmitted, I see no reason why their necks should not grow as high as the cross of St. Paul's. In fact, considering his beliefs—perhaps I should say his faith—I am lost in wonder that Dr. Mercier is not lost in wonder that they are not already higher. I am on my good behaviour and I am an even humbler student of logic than Dr. Mercier, but in the interests of the science I must protest that he seems to take some very disconcerting liberties.

Dr. C. E. Scudamore says that "in order to maintain his ground Dr. Reid *must* show that degeneracy due to an acquired morbid condition of the parent would be necessarily more potent than any counteracting influence—e g., the elimination of the unfit." Well, but take the case of virulent malaria. The whole race suffers at first tremendously. Even now immunity is extremely rare among young negroes. Some die and leave no offspring. The rest survive and leave, it is supposed, defective offspring. And this continues generation after generation. If any individuals are so resistant that their offspring are not affected, yet these offspring intermarry with the degenerates *and their offspring are in turn degenerate*. The *mean* of the whole race is thereby lowered. The more virulent the malaria the more rapid and complete should be the degeneration of the race. But as a fact quite the contrary happens. Races that have been most exposed to the action of malaria are not in the least degenerate. They have merely become highly resistant. So also whole races have been exposed to alcohol or to hardship and privation but there is not the slightest evidence that they grow degenerate. They grow more temperate or more hardy. Dr. Scudamore says that idiocy is common among the children of the alcoholic. That is not the point at issue. Let us have clear evidence that it is more common among them in consequence of parental intemperance than among the children of the sober.

If Dr. Scudamore will turn to Professor J. Cossar Ewart's presidential address to Section D of the British Association[1] he will find the strongest case *against* my contention that I know of. It is strong, not only because of the direct nature of the evidence brought forward, but also because as an authority on heredity Professor Ewart has hardly a rival in the scientific world. He states that some pigeons from India in his possession produced no offspring or only weakly offspring while infected by a parasite resembling that of malaria but normal offspring when restored to health. I have no desire to minimise the importance of his observations but it is obvious, in view of the fact that species exposed to disease do not degenerate and that asexual reproduction results in exact copies of the parent, that his observations need to be extended before they can be accepted as conclusive. Nor do I mention his address in a spirit of bravado. I draw attention to it because it confirms the ordinary medical view and chiefly because it brings into prominence a circumstance on which he has not dwelt but which, if true, is important and curious. It seems, if his observations are accepted, that spermatozoa which leave the male during his illness are so weakened that even within the healthy female body and after union with healthy ova they produce debilitated offspring. In other words, such cells produce weakened descendant-cells. Neither in themselves nor in their descendants do they recover. But if these same sperms reside for a longer time within the unhealthy body of the male they can in common with all the rest of his cells, including the spermatoblasts, recover perfectly and produce normal offspring when he recovers. So that the conclusion we are driven to is this, that the only cells in the whole body incapable of recovery are those ripe germ cells which happen to pass to a healthy environment (the female body) and which enter into union with healthy cells. As I say, if this were confirmed it would be a very curious and important fact.

But now supposing it *were* confirmed, supposing it were proved by extended experiments, that I have been mistaken and that parental disease does affect offspring, then another point would arise, What is the nature of this filial enfeeblement? Is it a true variation (inborn trait) or is it merely a modification (acquirement)? Professor Ewart regards it as a variation. I have made the same assumption, and so, as far as I am aware, has everyone else. But variations are transmissible to offspring and to remoter descendants, whereas modifications are not. If then, the enfeeblement is a true variation, it is impossible to understand how racial evolution can result from a cause which renders offspring degenerate. But if it is only an acquirement, if the germ cell merely is enfeebled, while the germ plasm contained within it is not radically altered—as seems to be the case with the sperms that remain in the body—then here would be an explanation of the mystery. It would be possible in that case for racial evolution to occur even though parental disease enfeebled offspring, since the enfeeblement would not be transmitted to descendants. Only direct experiment can decide this point. *Professor Ewart does not appear to have experimented* with the offspring of the enfeebled individuals; but it is to be hoped that he will do so. I offer this suggestion for what it is worth but the results of asexual reproduction render me extremely sceptical.

---

[1] Nature, Sept. 12th, 1901.

Leaving aside for the time being these very obscure and abstruse problems, I may be permitted to express my pleasure that none of your correspondents now appear to doubt that human evolution really has resulted from disease and alcohol. When first I raised the point it was received with amazement and amused incredulity. The next step, I hope, will be a recognition of the tremendous consequences of that evolution. The political history of man is important but it is a *little thing, even as regards* political *results*, when compared to his natural history.

I am, Sirs, yours faithfully,

Southsea, August 23rd, 1903. G. ARCHDALL REID.

To the Editors of THE LANCET.

SIRS,—*Dr. G. Archdall Reid and Dr. C. R. Niven* require no assistance in meeting the arguments of Dr. J. Wiglesworth; one can only marvel at Dr. Reid's patience in meeting and disposing of the same class of opponent year after year. I beg a small space to comment upon the report of the discussion on Dr. Reid's paper before the British Medical Association which appeared in THE LANCET of August 15th, p. 469.

I cannot believe that your reporter is romancing; I cannot believe that he is indulging his sense of humour, which would be sadly out of place in an account of the annual professional exhibitions of mental meteorism; I can only believe that his report is too true and represents the solemn opinions of a number of medical men whose education, presumably, included a study of biology. The position of these champions of *post hoc* reasoning appears to be as follows: Statistics prove that drunken parents often have defective children (or, rather, defective children in asylums have often had drunken parents), therefore parental drinking is a cause of filial degeneration.

Is it really *necessary to point out* the *fallacy to gentlemen* who have passed an examination in Jevons or Berkeley? Have they checked their conclusions by ascertaining to what extent *non*-drunken parents have defective offspring or to what extent the defective children in asylums are the offspring of defective people? Mental instability (whatever that means) is, they tell us, a cause of drunkenness. Then may not the shortcomings of the child be due to the parental "instability" and not to the parental-drunkenness which accompanied it? Surely there is a great gulf here between the *post* and the *propter*. And is there not reason for less dogmatic assertion when one recollects that biologists—men who understand the real difference between inborn and acquired characters—have never yet ascertained *(pace* Dr. A. W. Gilchrist and his Neapolitan hearsay), in spite of immensely prolonged investigations, that it is possible to modify the germ plasm.—I am, Sirs, yours faithfully,

Florence, Italy, August 21st, 1903. H. LAING GORDON.

To the Editors of THE LANCET.

SIRS,—I was somewhat struck on reading the account in THE LANCET of the meeting of the Psychological Section of the British Medical Association with the ignorance displayed by Dr. G. Archdall Reid's opponents of his previous works on the subject and of the grounds upon which he based his arguments. As one who has taken a certain interest in the subject I must confess my surprise at Dr. J. Wiglesworth's remarks. I fancy that had he been acquainted with Dr. Reid's "Alcoholism, a Study in Heredity," he would have considerably modified the statements which he made. The same applies to the remarks made by Dr. A. W. Gilchrist and others. Had these seen the work that I have mentioned, together with "The Present Evolution of Man" written by the same author some little time back, they would have found that there their arguments had been completely forestalled and refuted. These works are the most interesting and lucid amongst those I have had the pleasure of reading and they throw an entirely new light upon the vexed question of heredity, a subject upon which medical men unfortunately seem to dogmatise without first studying the actual facts as they are seen in nature.

I may be allowed possibly to quote the remarks of your own reviewer on "The Present Evolution of Man": "The result is a monograph which is crowded with illustrative data and well-reasoned arguments, a work that requires to be read and studied many times before its full import is grasped, and one which deserves in its place as much attention from the thoughtful as any of the numerous writings that have arisen from this most fruitful doctrine."[1] Dr. Reid may be right or he may be wrong. It is not for me to say. At any rate, to my mind he has advanced arguments and proofs which in the various discussions that have taken place have never been refuted. I, and I think many others, would follow with the very greatest interest a discussion of his theories by those who have made a careful study of his works and have not, as happens with so many, jumped to immature conclusions after what has evidently been a most perfunctory perusal of his arguments.

I am, Sirs, yours faithfully,

A. MEARNS FRASER, M.D. Edin.,
Medical Officer of Health of Portsmouth.

Portsmouth, August 24th, 1903.

THE USES OF SODIUM SALICYLATE IN THE TREATMENT OF MALARIAL FEVER.

To the Editors of THE LANCET.

SIRS,—At p. 95 of THE LANCET of July 11th, 1903, Mr. A. D. E. Kennard has an article on this subject, in the course of which he says: "I find that this drug is very little used in India for malarial fever, in fact the practitioners there pin their faith to quinine," &c. It is true that medical men in India use quinine in malarial fevers; but it is incorrect to state that they do not use sodium salicylate as well. It is a very common treatment indeed to employ sodium salicylate either alone or in combination with other diaphoretics for relief of the *symptoms* of pain and pyrexia, while quinine is used at the same time for the *cure* of the malarial attack. Speaking for myself, I have systemetically used sodium salicylate on myself and on my patients in malarial fever for over a dozen years, and I know that many of my brother officers in the Indian Medical Service do the same.

I am, Sirs, yours faithfully,

July 31st, 1903. D. M. MOIR, M.D. Edin.

THE ADMINISTRATION OF SOMNOFORM.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 15th, p. 496, is a letter under the heading "The Administration of Somnoform," in which the writer alludes to the description of an inhaler for somnoform by Mr. Vernon Knowles appearing in THE LANCET of August 1st, p. 323. The writer speaks of this apparatus as an excellent one, but goes on to say that he personally does not see the need of any special apparatus beyond the usual Clover's bag attached to the ordinary facepiece which he lines with cotton-wool, leaving the entrance to the bag free. Having used Mr. Knowles's inhaler almost daily for the last three months with excellent results I should like to point out that the most important features of this inhaler have been overlooked by Dr. W. Bernard Secretan and certainly do not obtain in his method. The fact that the supplemental bag of this inhaler is reversible and can also be sterilised is obviously a great improvement on the ordinary Clover's bag.

Again, the air valve obviates the usual though very objectionable procedure of the administrator inflating the bag with his own breath before presenting the anæsthetic. When once the facepiece has been applied there is no need to remove it until complete narcosis has been obtained, the air-supply being regulated by the valve. In using this inhaler the period of induction is lessened and a smaller quantity of somnoform is required.

---

[1] THE LANCET, June 13th, 1896, p. 1647.

The lint cone, too, is a more convenient medium for conveying somnoform than cotton-wool, as the former can more easily be adjusted to the facepiece and can be kept in exact position by the four-armed spring and is so quite out of the way and cannot touch the face of the patient. In giving anæsthetics for dental practitioners plenty of space in the facepiece is very necessary, especially when a mouth prop of the Brunton variety is used, which projects one inch or more in front of the incisor region.

I find it preferable to give two and a half cubic centimetres or half the dose marked on the bottle, repeated if necessary, as with this quantity I have found no tendency to sickness, whereas with larger doses a feeling of sickness or actual vomiting sometimes occurs.

As somnoform is a very satisfactory anæsthetic for minor operations and as a preliminary to ether administration further correspondence from those who have had experience with it would be of interest.

I am, Sirs, yours faithfully,
ERNEST C. MAGUIRE, M.D. Aberd.,
Honorary Anæsthetist, Brighton Dental Hospital.
August 22nd, 1903.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—The interesting point is that Dr. C. A. Rayne finds that his patients are losing their goitres by the simple plan of avoiding the "cause," whatever it be, contained in drinking-water. This, of course, can only apply to the "acquired" disease. In the article "Thyroid" in the Encyclopædia Medica Dr. G. R. Murray states the same conclusion in practically similar terms. The *boiling* of all drinking-water, he says, may in early stages be followed by disappearance of the goitre. The connexion of the water-supply with endemic goitre is fairly generally recognised, and while one authority (Quain's "Dictionary," 1883) advises to abstain from drinking the water in goitrous districts, another (Heath's "Dictionary of Practical Surgery," 1886) says, "The patients and those living in goitrous districts ...... should drink only *boiled* water." Yet I venture to think that Dr. Rayne is correct in regarding this "old" advice about using only *boiled* or *distilled* or *rain* water as not insisted upon or rigorously carried out in practice. Dr. Murray further suggests that a living micro-organism is indicated as the probable cause of the disease from the fact that the water containing it is rendered harmless by boiling. If this be found equally as efficacious as distilled or rain water *boiling* would seem to be the least troublesome process.

I am, Sirs, yours faithfully,
Urmston, August 24th, 1903. T. CARTER BOOTH.

To the Editors of THE LANCET.

SIRS,—Although, as Dr. L. E. Stevenson points out in THE LANCET of August 15th, p. 493, the treatment of goitre by means of distilled water is nothing new, yet I think the following case which occurred in my own practice a good many years ago may be of interest to your readers in connexion with the various letters which have appeared on the subject in your columns. The patient was a girl, aged about 15 years, who had a rapidly increasing parenchymatous goitre of short standing. The sole water-supply to the house in which she lived was rain-water collected from the roofs. The drinking of such water should not produce goitre, but the main collecting-pipe which led from the roof to the cistern crossed the bottom of a dung-pit and was cracked. The water consequently had been getting polluted with stable manure and when this defect was remedied and the girl drank plain unfiltered rain-water the goitre gradually disappeared. The contamination of surface water from farm and stable yards is quite recognised as a factor producing goitre. It has been pronounced to be due to the presence of ammonia salts or free ammonia, but I do not know whether the presumption is warranted I am sure that goitre is much less common in this district than it was 15 years ago, probably owing to the disappearance of surface wells and unprotected spring supplies, although the water-supplies of this place are of rather more than average hardness, one supply—viz , that of the Kent Water Company from the Orpington wells—being very hard indeed. But there is nothing new in all this, and I believe myself that the sole effect of rain o distilled water is that the imbibition of poisonous material, which produces a proliferating catarrh of the thyroid acini, is withdrawn.

I am, Sirs, yours faithfully,
Westerham, August 26th, 1903. ARTHUR MAUDE

INTESTINAL ANASTOMOSIS FOR PROLAPSED SMALL INTESTINE.

To the Editors of THE LANCET.

SIRS,—I read with great interest the case of Intestina Anastomosis for Prolapsed Small Intestine by Mr. R. W Murray in THE LANCET of August 22nd (p. 524) and I think that all will congratulate him on the success of his operation. The point that I wish to refer to, and which is, I think of great importance to bear in mind when operating on a similar case, is the fact that the boy died two years after the operation and at the post-mortem examination it was found "that a portion of intestine which had been occluded—namely, 18 inches of the ileum, the cæcum, and ascending colon—was enormously distended, filling the greater part o the abdomen. It was entirely shut off from the rest o the gastro-intestinal tract and filled with offensive mucopurulent fluid." Some years ago a German surgeon drew attention to the fact that the mucous membrane o the intestines secreted a fluid which had all the appearance of ordinary fæces notwithstanding that no food had been introduced into the intestine for some considerable time. This statement appeared at the time I was making some experiments in intestinal surgery at the laboratory of the Royal Colleges of Physicians of London and Surgeons of England and to test the accuracy of the statement I performed the following operation on a dog. I withdrew some 12 inches of small intestine and cut it across at each end. I then washed the loop thus drawn out thoroughly by allowing a current of weak carbolic solution to run through it. Having thus cleansed it of its contents I invaginated both ends and closed them with a few stitches. I then united the proximal end of the divided intestine with the distal, thus re establishing the intestinal tract, the detached loop of intestine was then returned into the abdomen, and the parietes were closed in the usual manner. The dog experienced no perceptible inconvenience from the operation and took its food as usual. The abdominal wound healed quickly. After a few weeks there was perceptible distension of the abdomen and the dog was killed some short time afterwards. On opening the abdomen the occluded loop of intestine was found, as in Mr. Murray's patient, to be enormously distended and congested. On opening it it was found to be filled with a most offensive fluid of the consistence of gruel and having all the appearance of ordinary fæces as found in the small intestine.

The point of practical interest which arises from Mr. Murray's case and from my experiment is, I think, that in any case similar to Mr. Murray's in which it is found necessary to occlude a portion of the intestine, it would be wise to establish a fistulous opening between the occluded loop and another portion of the intestinal tract or with the abdominal surface. In Mr. Murray's case possibly, if instead of dividing the transverse colon and invaginating the cæcal end he had been content with performing a lateral anastomosis the same object might have been obtained.

I am, Sirs, yours faithfully,
August 24th, 1903. FRED. BOWREMAN JESSETT.

THE TITLE OF "DOCTOR."

To the Editors of THE LANCET.

SIRS,—A small addition to the Medical Acts Amendment Bill would remove a notorious and long-standing grievance. Clause 21 deals with registration after passing a State final examination. If to that clause were added the words "and such registration shall confer the title of 'Doctor,'" diploma holders would then be placed in a fair position and the public would no longer be puzzled by the registered medical practitioner, to whom they have gone for medical assistance, telling them that he is not a "doctor." If desired the actual degrees or diplomas can be easily shown, as "Dr. Jones, L S.A.," "Dr. Brown, M.D.," or even "Dr. Smith, F.R.C.S." There is no suggestion here of conferring a degree, but of legalising the use of the word "Doctor" according to its dictionary meaning and its present accepted use by the public.

I am, Sirs, yours faithfully,
PERCY ROSE.
Barking-road, E., August 24th, 1903.

ASEPTIC AND ANTISEPTIC SURGERY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 13th, p. 1697, is a letter under the above heading signed Robert Henderson, purporting to be an answer to my letter in your issue of May 30th, p. 1543. Mr. Robert Henderson accuses me of endeavouring to belittle the "general practitioner," and as I had no such intention I am sorry that my letter should have been construed as such. At the same time I hardly consider that Mr. Robert Henderson was justified in his remarks about the consultants, for I feel perfectly convinced that if any severe major operation had to be performed upon any near and dear relative of Mr. Robert Henderson's that he would not call in the ordinary general practitioner to do it but would select *la fleur l'élite* of the consultants.

I am, Sirs, yours faithfully,
FREDERICK DEANE, F.R.C.S. Edin.
Barbados, West Indies, July 17th, 1903.

SCIATICA AND THE HIP-JOINT.

To the Editors of THE LANCET.

SIRS,—The interesting paper on Sciatica by Dr. William Bruce in THE LANCET of August 22nd, p. 511, reminds me of a case which I had in hand some years ago. The patient was a man, aged 69 years, who had suffered for many years from arthritis deformans, the disease mainly affecting the hip-joints. *He was also the victim of intense double sciatica* and his lower limbs were useless for walking, compelling him to go on crutches. Three years before I saw him he had fal [illegible] fracture [illegible] he was [illegible] and of [illegible] almost entirely disappeared from the left leg. In the right leg it was as bad as ever. When I first saw him he had just met with a similar accident—a fall downstairs—this time sustaining an intracapsular fracture of the right femoral neck The treatment was extension with a weight over a pulley, the limb being kept in position with heavy sand bags As a result there was good union with no subsequent evertion, and as a further effect cure of the sciatica on this side also. Was the cure of the sciatica to be ascribed to the prolonged rest or to the prolonged stretching of the nerve aided by the solution of continuity in the osseous core of the limb?

Dr. Bruce's aspersion on removal of the Gasserian ganglion for relief of tic douloureux seems to me to be a *non sequitur* His "bold affirmation" of the invariably peripheral origin of the disease surely does not establish the "essentially barbarous" nature of the operation undertaken for its relief unless he has an alternative and less heroic cure to offer. Possibly Dr. Bruce does not mean that an operation which is "essentially barbarous" is therefore unjustifiable. Doubtless most of our operations will one day be regarded as meriting his epithet. But anyone who has suffered even for a short time from intense trigeminal neuralgia can well understand the willingness of a patient to undergo the most *heroic operation promising relief when the affection is* chronic and other treatment has failed to cure The barbarity of procuring relief at any cost is surely in this disease purely theoretical.

I am, Sirs, yours faithfully,
J. S. MACKINTOSH, M.R.C.S. Eng., L.R.C.P. Lond.
Hampstead, August 24th, 1903.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—Dr. Harry Campbell in his instructive Observations on Mastication says that "tooth powder should not be used as a matter of routine" and that "antiseptic powders and washes are to be scrupulously avoided" since many of the bacteria "play a useful part as scavengers."

As this is opposed to the usual custom sanctioned by most dental surgeons, may I ask Dr. Campbell to give reasons for these statements—i.e., observations and experiments upon which they are based. I am, Sirs, yours faithfully,
M.D.
August 25th, 1903.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Dispensary and Private Practice in the United Provinces.—The Volunteer Forces of India.—The Growing Plague Mortality.—Offences at Examinations.—The Want of Ambulances in Calcutta.—The Municipal Sanitary Administration of Indian Cities.

THE Inspector-General of Hospitals for the United Provinces raises a very important point with regard to dispensary and private practice in India which is not altogether without its parallel in England. He considers that the Government instead of encouraging the opening up of new dispensaries in villages should do all it can to encourage qualified native practitioners to settle in the villages and small towns. At present the medical officer of a dispensary has to attend the whole population and it is unquestionably bad policy to encourage the general population to expect gratuitous medical relief. To the objection the Lieutenant-Governor replies that it is not possible at present to substitute private practitioners for dispensaries, that private practitioners could not afford the appliances which are provided at the dispensaries, and that Western medicine has not sufficiently established itself in these provinces for men of the hospital assistant class to stand alone. Colonel Joubert also calls attention to the utter want of privacy in the treatment and examination of out-patients in most of the dispensaries and to the use of the ordinary bench or form on which the patients sat as a couch for examination. This may account for the very small number of female diseases returned in the registers.

In view of the faulty physique and want of fitness for service shown amongst *the volunteers attending the Delhi* Durbar to which I called attention the following return may be interesting :—

[illegible] follows.—

Naval Volunteers	432	Railway Volunteer Rifles ...	11,569
Submarine Mining Engineers	140	Local Volunteer Rifles... ...	11,464
Electric Engineers	46	Cadets	4,274
Light Horse	1,724	Reservists	792
Mounted Rifles	776		
Artillery	1,279	Total	32,496

During the year no new battalions or corps have been raised. Two railway corps (Bengal Nagapore Railway and the Great Indian Peninsula Railway) have been formed into two battalions each.

The plague mortality for *India having sunk to its yearly* minimum has during the past few weeks been slowly but steadily rising again. The increase as well as the mortality is almost entirely confined to the Bombay Presidency and the Mysore State, for which 1817 and 270 deaths respectively were recorded for last week out of a total in all India of 2284. The Punjab returned only 55 deaths, Bengal 29, the United Provinces 21, and the Hyderabad State 12.

An incident connected with the Grant Medical College, Bombay, illustrates the strong tendency so often shown in India to obtain illicit information. 15 first- and second-year medical students have been rusticated in consequence of their having committed "certain dishonest acts at the last terminal *examination inasmuch* as they copied." Government and municipal officers are well aware how frequently private information is surreptitiously obtained. Great precautions have to be taken at examinations to prevent students getting "outside" help and it would be better if examiners generally were more on the look-out for this offence and if they reported all delinquents accordingly.

The ambulance scheme for Calcutta to which I referred a little while ago has ended almost in a fiasco. Although the special committee of the corporation recommended that litters on wheels should be kept at certain stations in charge of the police and that special ambulances should be kept for the removal of infectious cases, the general committee disapproved of the latter and only sanctioned a few of the former and these are to be kept at the tramway depôts. The dangerous practice of using hackney carriages for infectious cases will therefore have to be continued and no help can be expected from the police in cases of accident. Comment is unnecessary, but that such a state of things should be permitted in the metropolis of India, with a population not far short of a million, is, to say the least, extraordinary.

The municipal administration of the towns in the United Provinces fails very markedly in sanitary matters. There were thousands more deaths than births and more than half the towns recorded a death-rate of over 40 per 1000. Some of the rates were: Brindaban, 78·8; Allahabad, 75·4; Benares, 66·4; Jaunpur, 91; and Cawnpore, 58·3. In Allahabad the roads have grown steadily worse, the street lighting is disgraceful, and the conservancy arrangements are very bad, while the Government has found it necessary to speak in strong terms against six boards for generally unsatisfactory results. The neglect of public duties by municipal bodies so constantly reported from different parts of India calls for the sanitary administration of the towns being taken from these incompetent representative bodies. In nearly every province it is the same and until English officers of health with powers behind them are appointed we shall see very little improvement.

August 7th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

"*Criminal Neglect*" *and the Charge of Manslaughter.*

THE charge of manslaughter arising out of the collapse of three cottages in Ancoats, by which two little girls lost their lives, has fallen through. The inquest was reported in THE LANCET of August 15th, p. 497. The hearing of the case took place before one of the stipendiary magistrates, Mr. E. Brierley, on August 12th. Of the three cottages the two outer ones were uninhabited, having been condemned many years ago; the middle one unhappily escaped condemnation and was occupied, though its condition must have been thoroughly bad, for on one occasion it is said that "one of the stairs gave way and fell into the cellar," and in March last "the snow came in through the bad places in the ceiling." These things were remedied but no thorough inspection was made as to the safety of the structure. One of the houses adjoining had lost half its slates and the rain beat through against the party wall, "which had also been partially undermined in the cellars. So rickety was the whole fabric that the manager of a saw-mill across the street ordered his men to unload their heavy logs gently for fear of shaking it down," and the tenants thought that the unloading of a large boiler opposite was "a main factor in the actual collapse." But nobody was to blame. The agent, who was the defendant, thought that he need not do anything unless the tenants or the corporation complained, and they did not complain. The counsel for the prosecution said that attitude meant a shifting of the blame on to the shoulders of the tenants or the corporation, and contended that it was not good in law. For the defence it was held that the prosecution had to prove, according to law, "that the defendant had been guilty of negligence of a personal character—negligence that might be called substantial or gross negligence—and they had also to prove that the alleged negligence was the cause of the death of the children." It was submitted that these points had not been proved "and that the defendant had carried out his duties in the common and universal way," and that he ought not to be sent to trial "unless there was a great probability that upon the evidence he would be convicted." No doubt, happily for the defendant, this is good law, for it was endorsed by the stipendiary who expressed the opinion that it was not a case "in which he ought to send the defendant for trial on a charge of manslaughter" and discharged the defendant. All will perhaps agree that the wretched tenants should not be held responsible. This dwelling was probably the cheapest shelter they could get and perhaps the best they could afford. It was clearly held that the corporation could not be made responsible and just as clearly that the agent "had discharged his duty in the way it was universally discharged" and was therefore blameless. The owner of the property, said to be an old lady at Southport, who perhaps knew nothing of the condition of her property, however desirable that might have been, was scarcely mentioned in the case, and so it came about that nobody was held accountable for this slaughter of the innocents. This is most encouraging for all jerry-builders, owners of slum property, and their agents. For other people it may seem an unfortunate—some would say a disgraceful—state of things, not reflecting credit on any of those blameless people nor even on the corporation of Manchester with its one inspector of dangerous property.

The Hospital Fund.

The amount raised this year in Manchester and Salf the Hospital Sunday and Saturday Fund is larger tl several years past. The Sunday collections have, ho fallen, while the Saturday returns have increased. former come to £3922, which is, indeed, a great im ment on last year's collections, but much lower than i when they nearly reached £6000. The Saturday retur year come to £4463, the largest amount yet received this source. It is difficult to account for the reduction Sunday collections, but there have been many other calls on the charitable during the last few years and i also be that some of the gifts have been diverted the Sunday to the Saturday Fund. There does not seem much doubt that among the more thoughtful and respe of the working classes this Hospital Saturday schem brought out an honourable feeling in favour of self-hel those familiar with the work of our hospitals are awar such a feeling has not hitherto been too general. Saturday and Sunday collections (£8385), with a ba from last year of over £426 and bank interest, gav fund a total of £8851. Administrative expenses amoun £619. The committee have been able to distribute to the various medical charities and to carry fo £231 10*s.* 4*d.* to next year. Though a long way b some other towns, it is encouraging that this year the an increase and we may hope that it is an earnest of gr efforts in the future.

"*Trucking*" *in Workhouses.*

The "Truck system" which was abolished long outside the workhouses seems to have lingered in t institutions, if we may judge by what occurred at the m ing of the Chorlton board of guardians on August 14th. number of regulations were adopted, on the recommenda of the workhouse committee, "with the object of preven the continuance in the workhouse of what is known am the inmates as the 'trucking system.'" All money possession of the inmates is to be taken possession of by master and applied towards the cost of their maintenan Special food ordered by the medical officer is to be pared by the nurses in the hospital kitchen and a teacher invalid cookery is to be appointed to instruct the probatio nurses. And in order to avoid the retention in the hosp wards of convalescent patients fit to be discharged resident medical officers will be expected to call the att tion of the visiting medical officers to patients who, in th opinion, are sufficiently recovered to leave the hospital. the main these regulations are no doubt good, but it alm seems as if the inmates possessed of any money were expect to be permanent residents, for what little they have is to spent in their maintenance, so that when they leave— ever they do—they will be absolutely destitute, wit out means to provide a lodging or to supply the immediate wants. One does not envy the position one of the "deserving poor" suffering from misfortune such circumstances, and he, more than the chronic loafer will be a fit recipient of Poor-law relief. The appointmen of a teacher of invalid cookery is an admirable innovation The last regulation does not appear to be complimentary t the visiting medical officers, as it assumes that their attention would not be drawn to the condition of the convalescents unless it were roused by the superior vigilance of the resident medical officer.

A Third Water Main from Thirlmere.

Powers have been asked for in the Corporation Bill to borrow money for providing a third pipe from Thirlmere, which will be required as soon as the second is completed. Mr. Hill, the engineer, said he believed that the increase in the water consumption was due largely to increased use rather than to an increase in the number using it. The estimated cost is £650,000 and in addition £200,000 are wanted for the extension of the water mains in the area of distribution. The corporation now supplies 1,100,000 people.

August 25th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Glamorganshire County Council.

AT the termination of an inquest held at Aberdare, Glamorganshire, on August 19th the coroner remarked that the county council made no provision for the making of analyses of contents of the stomach, &c, in cases which the coroner might consider requisite He added that he thought it most desirable that the services of the county analyst should always be available on such occasions The jury agreed with the coroner and passed a resolution that the county council should be approached with a view of obtaining that object

The late Mr Mark Whitwill

The late Mr Mark Whitwill, who died recently at Bristol, was the founder of the Bristol Royal Hospital for Children and Women and for more than 40 years was its president and honorary treasurer and took the greatest interest in the institution The committee of the hospital are desirous of having some memorial in connexion with the Children's Hospital to perpetuate his memory and are appealing for £4000 to endow one of the existing wards, which is to be hereafter named the "Mark Whitwell."

Vaccination in the West of England

At the meeting of the Axbridge board of guardians held on August 18 h it was reported that from July 1st to Dec 31st 455 births had been registered, of this number 263 had been successfully vaccinated and 93 received certificates of conscientious objections At the meeting of the Bideford board of guardians held on August 18th it was stated that during the last six months of 1902 281 children were registered, of this number 230 were successfully vaccinated and ten received exemption certificates The Exeter board of guardians at their meeting on August 18th stated that during the second half year of 1902 400 births were registered, 307 of these were successfully vaccinated and only five received certificates of exemption At the meeting of the St Thomas s (Exeter) board of guardians held on August 14th it was reported that from July to December, 1902 there were 528 births Of that number 457 were successfully vaccinated, four were insusceptible to vaccination, five were conscientious objectors, 41 died unvaccinated, in four vaccination was postponed for medical reasons, and 17 removed to other districts

Obituary

Mr Samuel Nathaniel Elliot died at his residence, Whiteford road, Plymouth, on August 9th The deceased, who received his medical education at University College Hospital, obtained the qualifications of M R C S Eng and L S A in 1842 and 1843 respectively Shortly after he qualified Mr Elliot commenced practice in Dartmouth and remained there for many years, afterwards coming to Plymouth He took a great interest in the volunteer movement and was one of the original members of the old 6th Devon Volunteer Corps (Dartmouth), joining as surgeon, after serving for 25 years he retired with the rank of surgeon major and received the long service medal Mr Elliot was a great sportsman and was well known in the hunting field some years ago He was highly respected and was on the Commission of the Peace for the borough of Dartmouth The funeral took place on August 18th at South Milton, near Kingsbridge, Devon, which has been the last resting place of the family for many generations

The Housing of the Working Classes in Monmouthshire and Glamorganshire

Several of the sanitary authorities in Monmouthshire and Glamorganshire are taking steps to provide houses for the working class inhabitants of their districts In Newport owing to the expiration of the leases of many of the old houses these are being replaced by better dwellings fitted with modern sanitary conveniences Courts are thus being gradually got rid of and open spaces around houses have increased The new houses which are being erected by private builders appear to be quite sufficient for the increase of population, but there is a deficiency in the number of small cottages obtainable at a low rental. A special committee of the town council has been considering the question for some months and in April last recommended that 66 houses of two and three rooms with a scullery should [illegible] considerable amount of [illegible] at successive meetings [illegible] was finally sanctioned on August 11th last At Abercarn a large and increasing colliery district in the western valleys of Monmouthshire, the district council has been active during the past two years in providing suitable houses and has applied to the Local Government Board for sanction to borrow £6850 for the purpose of erecting dwellings to let at a rental of 4*s* and 5*s* weekly The medical officer of health of Bedwellty (Mr H T Evans), in his last annual report, said that the most urgent and pressing need of the whole district was additional houses for many of the existing cottages were insanitary, ill ventilated, and not fit to be tenanted A large number of them were occupied by more than one family and in one instance two families lived in an old stable Some dwellings, he said, would have been condemned long ago had there been other suitable houses for the occupants to go to At the last meeting of the Bedwellty district council the chairman said that private owners were taking advantage of the inaction of the council and were tyrannising over their tenants In Merthyr Tydvil 100 houses have been provided by the district council and the desirability of doing something in this direction is being discussed by the Pontypridd council In the Rhondda valley the trades union lodges are attempting to deal with the problem, which does not appear to have been seriously considered by the sanitary authority, although in his recently issued annual report the medical officer of health (Dr J D Jenkins) stated that the demand for houses in the district continued to be in excess of the supply and it was an almost daily complaint that a house at a rental of from 4*s* to 6*s* per week could not be obtained At the last census one third of the 22 000 tenements in the Rhondda contained less than five rooms, while 1000 of the 2330 three roomed houses were each occupied by more than four persons But the most conclusive evidence of the need for more houses in the district is to be found in a table inserted in the report referred to, which shows that among 1611 houses in which cases of infectious disease occurred during 1902 there were no less than 767 occupied by more than one family The death rates in the Rhondda last year did not compare very favourably with those recorded in the other large towns of England and Wales and the members of the district council might with advantage consider whether a death rate from all causes of 19 2 per 1000 and an infantile death rate of 178 per 1000 births in a naturally healthy locality is not, to some extent, the result of inadequate housing accommodation

Compensation for the Loss of Diseased Cattle

The Wells (Somerset) rural district council has memorialised the Board of Agriculture urging the desirability of compensating farmers and others who in good faith sell apparently healthy cattle which upon being slaughtered are found to have been suffering from tuberculous or other diseases The memorial is being indorsed by most of the district councils in Somersetshire

The Renewal of the Vaccination Act

At the last meeting of the Herefordshire county council a resolution was passed expressing the opinion that primary vaccination and revaccination at or about the age of 12 years should be made compulsory, that the control of the carrying out of the Vaccination Acts should be transferred from the boards of guardians to the county councils, and that greater facilities for the supply of pure glycerinated lymph should be afforded

August 25th

IRELAND

(FROM OUR OWN CORRESPONDENTS.)

Public Health of Dublin.

IN ordinary circumstances the population of the city of Dublin is much larger during what is known as the horse show week—which commen [illegible] than at any *other* time In [illegible] it is satisfactory to note th [illegible] favourable At the fortnightly meeting of the public health committee held in the municipal buildings on August 19th the superintendent medical officer of health reported that during the week which ended August 15th the death rate from all causes was 19 2 per 1000 per ons living, while the mean death rate in the corresponding period of the previous ten years was 26 The zymotic death rate was 0 9 per 1000, comparing very favourably with the mean rate of the last ten years, which was 5 6 for the corresponding week Referring to the latter Sir Charles Cameron said "The zymotic death rate is probably the lowest on record I have looked through the mortality statistics of the last 20 years and have found no zymotic death rate so low for this period."

216 storekeepers. The board had held a preliminary and a final examination, 32 candidates passing the former and 11 the latter. Reciprocity with the Pharmacy Boards of Victoria and South Australia had been successfully established and pharmacists registered in any one of the three States would be entitled to practise in the other two. A great deal of work had been done in explaining the provisions of the Poisons Act and warning the public of the danger in dealing with poisons and the direct result was that the reported cases of poisoning in New South Wales had decreased considerably—in fact, up to 50 per cent.—under the board's administration of the Act.

Hospital Affairs.

Plans have been prepared for a new hospital for women in Sydney. The new building will provide for the work hitherto carried on by the Benevolent Society and the Women's Hospital under one control, an amalgamation of the two bodies having been effected. According to the plans the administrative block is placed in the centre, separating two main wards, one on either side. One of these is for obstetric work and consists of two large ward blocks each containing about 50 beds, with the necessary offices. On the other side are two wards for the gynæcological or women's hospital, providing accommodation for 50 beds each. In addition there is a separate block containing the operating theatre, attached to which are surgical wards. The complete plans provide for an out-patients' department to be erected at the Oxford-street entrance, and also in other parts of the grounds isolation wards, nurses' home, laundry, and other small buildings needed for the requirements of an institution of this nature. At the present time, however, it is proposed to build as a first instalment accommodation for 100 beds on the maternity side and for a similar number in the women's hospital section, together with an operating theatre. The balance of work will be completed when funds are available and in the meantime Flinton, the existing house, will be used as the administrative block. In the completed design this block is connected with the wards on either side by a loggia on each floor, which can be converted into a closed passage as desired. This leads into a central lobby, from which secondary corridors give access to the main wards and other rooms. The administrative block is carried to a height of three floors, while the ward blocks are each four storeys. The buildings are to be carried out in brick, with stone dressings and slate roof, and the site selected for the main blocks occupies practically the extent of the frontage. The buildings are placed in an elevated position and the ground falls rapidly to Glenmore-road. This gives an uninterrupted view of the harbour across Rushcutters' Bay. In planning the building every effort has been made to secure light and air and as far as is possible the internal construction will be of fireproof materials. The first section, which will be put in hand at an early date, will cost somewhere about £20,000.—On June 10th the Premier of New South Wales formally opened the new buildings of the Royal North Shore Hospital at St. Leonards, Sydney. The hospital was being opened with accommodation for 50 patients, and the cost of the building so far erected, when fully equipped, would be about £25,000, but when completed, according to the architect's plans, the number of beds would be 200. The design, however, being on the pavilion principle these extra beds could be added by degrees as the calls on the institution warranted such additions being made.—Mr J. M. Creed, M.L.C., has been appointed a director of the Sydney Hospital in the room of Dr Mackellar, M.L.C., who has resigned the position.—The committee of the Melbourne Hospital has decided to establish a department for diseases of the nose and throat. Dr. R. R. Stawell has been appointed physician to out-patients at the Melbourne Hospital in place of Dr. Daish, resigned. Dr. W. B. Walsh, Dr. A. Lewers, and Mr. J. G. Sheahan have been appointed physicians to out-patients at St. Vincent's Hospital, Melbourne.

Obituary.

Mr. Alexander Philip, a well-known Sydney medical practitioner, died at his residence, Aberfoyle, Jersey-road, Paddington, on May 30th after an illness extending over three months. He was the son of Colonel Philip of the Austria-Hungary military forces and was born in Budapest in 1847. After studying medicine in the military school at his native place he proceeded to London where he pursued his studies. He arrived in Sydney in 1868 and commenced business as a chemist in Surry Hills. After being well established he left the care of the business to a manager and proceeded to Ireland. He entered King and Queen's College and in 1877 obtained the degree of licentiate of the Royal College as a physician and in midwifery. In the following year he obtained the degree of licentiate at the Royal College of Surgeons, Ireland. Upon his return to Sydney the late Dr Philip commenced the practice of his profession in Devonshire-street and was known as a successful practitioner. In private life the deceased gentleman was highly esteemed for his many good qualities. He took a deep interest in the Masonic craft and was a Past Master of the Empress of India Lodge. He was also a linguist and possessed considerable musical attainments. He married the third daughter of the late Dr. R. von Schomburgk, for many years director of the Botanic Gardens, Adelaide. The deceased has left a widow and family of five sons.

July 13th.

Medical News.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders and Co. have the following new books in preparation:—"A Text-book of Operative Surgery," by Warren Stone Bickham, M.D., assistant instructor in operative surgery, Columbia University, New York; "A Text book of Clinical Anatomy," by Daniel N. Eisendrath, A.B., M.D., professor of clinical anatomy, medical department of the University of Illinois, Chicago; "A Text-book of Diseases of Women," by Barton Cooke Hirst, M.D., professor of obstetrics, University of Pennsylvania; "A Text-book of Obstetrics," by J. Clarence Webster, M.D., F.R.C.P. Edin., professor of obstetrics and gynæcology in Rush Medical College, in affiliation with the University of Chicago; "A Thesaurus of Medical Words and Phrases," by Wilfred M. Barton, A.M., M.D., assistant to the professor of materia medica and therapeutics and lecturer on pharmacy, Georgetown University, Washington, D.C., and Walter A. Wells, M.D., demonstrator of laryngology, Georgetown University, Washington, D.C.; and "A Manual of the Practice of Medicine," by A. A. Stevens, A.M., M.D., lecturer on physical diagnosis, University of Pennsylvania.—Messrs. Smith, Elder, and Co. announce a new work by Dr. A. Ransome, author of "The Treatment of Phthisis," entitled, "The Principles of Open-air Treatment of Phthisis and of Sanatorium Construction." Besides setting forth the need and the advantages of sanatoriums, with details of their construction, the work will include an essay on the pure-air treatment of phthisis in the home.

THE NORTH DEVON INFIRMARY, BARNSTAPLE.—The seventy-seventh annual meeting of the governors of this institution was held on August 18th. The report stated that during the preceding 12 months 666 in-patients had been admitted and 2541 out-patients had been treated. The average daily number of in-patients was 42 and the average stay was 24 days. The financial statement showed that the ordinary income for the last year was £2158 and the ordinary expenditure £2610 and an unfavourable balance of £452 remained. The chairman (Mr W. Hiern) stated that it was ten years since the ordinary income covered the ordinary expenditure.

DEATH OF W. T. SCOTT, M.A., M.B., C.M. ABERD.—Dr. W. T. Scott of Stalybridge died on August 23rd, at the early age of 36 years. He was a native of Aberdeen, but had been settled in Ashton and Stalybridge, which are practically one town, for about 12 years. He was an honorary surgeon to the Ashton District Infirmary and about a month ago scratched a finger while performing an operation in the infirmary. Blood poisoning followed and in spite of all that medical skill could do he gradually sank, adding one more to the long list of medical martyrs. At the inquest the coroner said that "Dr Scott died at the post of duty," and expressed his own and the jury's sympathy with the bereaved relatives."

THE NOTIFICATION OF SMALL-POX.—It is reported that the health committee of Burton on Trent has decided to prosecute two medical men for failing to notify a case of small-pox. The case occurred at an inn and when discovered by the medical officer of health was said to have given rise to 18 other cases.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. W. Cadge of Norwich £5000 are bequeathed to the trustees of the Earl of Leicester's endowment for the benefit of the Norfolk and Norwich Hospital, and £1000 to the Royal Medical Benevolent College for the endowment fund for pensions.—Mr. H. W. Stubbin, who died recently at Cheltenham, bequeathed £1000 to the Cheltenham General Hospital for the purpose of endowing a bed, a condition being that the bed should never be used by any "professed or suspected anti-vaccinator," nor "by any relative, servant, or other connexion of an anti-vaccinator, professed or suspected."—In April, 1897, the year of the sixtieth anniversary of the reign of our late Queen, a fund called the "Queen Victoria Commemoration Fund" was raised in Manchester to show the "close union which exists between the sympathies of the Queen and the sentiments of her subjects." The amount raised was £17,511 15*s.* 5*d*, and with the addition of bank interest allowed it reached the sum of £19,210 17*s.* 5*d* A statue of the Queen was placed in Piccadilly and this, with other incidental expenses, cost over £6000, leaving a balance of £13,178 9*s.* 7*d.* At a meeting of the subscribers to the fund it was resolved, on the motion of Sir F. Forbes Adam, seconded by Mr. E. S Heywood, who was for many years the chairman of the infirmary board, "that the balance of the fund now in hand be transferred to the managers of the Manchester Royal Infirmary." The subscribers present unanimously expressed the hope that the board of management of the infirmary would take steps, before the completion of the new buildings, specially to appropriate the contribution from this fund as a permanent memorial of the late Queen.

Appointments.

Successful [illegible] *ublic Institutions, and o* [illegible] *this column, are invite* [illegible] *rected to the Sub-Editor.* [illegible] *morning of each week,* [illegible]

Devon.

SCO [illegible] House Physician

SEC [illegible] appointed House

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

[illegible] ing, and attendance.

[illegible] —Salary £90, with board,

[illegible] Second Assistant Medical [illegible] um, with board, lodging.

CARLISLE, [illegible] Medical Officer, as House [illegible] House Surgeon for ensuing [illegible] and £100 per annum respecti [illegible] g.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical [illegible]

[illegible] PITAL AND DISPENSARY. [illegible] Salary £120 per year,

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms,

DEV [illegible]

DOR [illegible] ant Medical Officer, unmarried. Salary £100 per annum, with

EAS [illegible] Salary [illegible] —Junior [illegible] r, rising

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Remuneration at rate of £30 per annum, with board, residence, and washing.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

HOSPITAL FOR DISEASES OF THE THROAT, Golden square.—Anæsthetist. Also Senior Clinical Assistant.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Third Assistant Medical Officer, single. Salary £140, with board, apartments, attendance, and washing.

KNIGHTON UNION.—Medical Officer and Public Vaccinator. Salary £40 per annum.

LIVERPOOL, WEST DERBY UNION WORKHOUSE AND HOSPITAL, Walton.—Assistant Resident Medical Officer, unmarried. Salary £125 per annum, with board, apartments, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident [illegible] f 50 guineas per annum,

MANCHESTER [illegible] Medical Officer, unmarri [illegible]

METROPOLITAN HOSPITAL, [illegible] House Surgeon, Assista [illegible] Surgeon, all for six mont [illegible] year, *of two* latter at rate [illegible] *Pathologist, and Registrar.*

PARISH OF BARRA.—Medical Off [illegible] £119.

[illegible] House Surgeon. Salary £60 [illegible] hing, &c.

[illegible] use Surgeon for six months.

[illegible] r Assistant House Surgeon. [illegible] odging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Sur- [illegible] per annum, with resi- [illegible]

[illegible] ford.—House Surgeon. [illegible] ng, and washing. Also [illegible] er annum, with board,

[illegible] Anæsthetist.

[illegible] House Surgeon. Salary

[illegible], W.—House Physician. [illegible] six months. Board and

Births, Marriages, and Deaths.

BIRTH.

PEARSE.—On Aug. 21st, at St. George's *terrace, Trowbridge, the wife of* James Pearse, M.D., of a son.

MARRIAGES.

[illegible] Bombay. American and Colonial journals please copy.

DEATHS.

[illegible] Adviser to His Majesty [illegible]

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

INFECTIOUS DISEASES NOTIFICATION FEES.

To the Editors of The Lancet.

Sirs,—The Infectious Diseases (Notification) Act provides a fee of 2*s.* 6*d.* in the case of private patients and 1*s.* in respect of cases attended as medical officer of any public body or institution. The latter, I have always considered, referred to medical officers to a workhouse or hospital. I am a district medical officer under a union and in that capacity have visited and "notified" pauper patients and have only been paid 1*s.* for these cases. Has it ever been officially or legally decided under which category a district medical officer would come?

I am, Sirs, yours faithfully,

August 19th, 1903. Beta.

*** The district medical officer visits pauper patients as part of his official duties—i.e., as medical officer of a public body. It would therefore appear that he is entitled to a fee of 1*s.* for every such notification. We do not know of any legal decision having been given in the matter.—Ed. L.

COLONIAL APPOINTMENTS ON THE WEST COAST OF AFRICA.

To the Editors of The Lancet.

Sirs,—In reply to your correspondent "C. L.," in The Lancet of August 22nd (p. 580), allow me to say that as regards climate the latest West African statistics show a percentage of 25 constantly sick in hospital for white troops. The returns of the Church Missionary Society and the Nonconformist missionary societies show an even greater mortality than the army returns, although the missionaries are invariably total abstainers. Three facts may help intending applicants to form an idea of the climate. No boat ever reaches England from West Africa without having had a death. The number of deaths within two years of leaving the coast if published would for ever keep white men from West Africa. No West African resident has ever done anything after leaving West African service. The duty on foodstuffs varies from 10 to 50 per cent.; living in the larger towns is perhaps the most expensive in the world as a consequence. If a house or quarters are provided a young and careful man can live on from £300 to £350 per annum. It is obvious that the terms offered by the Colonial Government are totally inadequate to the danger and cost of living.

I am, Sirs, yours faithfully,

August 24th, 1903. Colonial.

*** This view of the colonial appointments is more unfavourable than the circumstances warrant.—Ed. L.

COFFEE AFTER DINNER.

Our annotation under the above heading, which appeared in The Lancet of July 18th, p. 177, has incited various correspondents to ask how the coffee jelly is made. The following recipe has the merit of simplicity and yields a jelly of satisfactory consistence and coffee flavour. The coffee should be freshly and finely ground from good light-roasted berries:—Three ounces of coffee, three ounces of sugar, and half an ounce of gelatin. Make three-quarters of a pint of good coffee infusion, exercising all due care to prevent loss of aroma and oils; dissolve the gelatin in a quarter of a pint of water, mix all the ingredients together and keep near boiling until the gelatin is dissolved; pour through a jelly bag into a mould.

SANITATION AND BUNGALOWS.

To the Editors of The Lancet.

Sirs,—Your anonymous correspondent's amazing travesty of the facts in The Lancet of August 15th (p. 508), in reference to the above subject, I think, in justice to the inhabitants of "Bungalow Town," Shoreham, requires more than passing notice. I will state as briefly as I can the manner in which the soil, &c., are disposed. Each bungalow is supplied with two enameled pails, one for the water-closet and one for greasy water, &c. Three men are employed during the busy summer season, each having about 70 bungalows under his control. He devotes an average of about five minutes to each one of these bungalows. Starting at 4 a.m. he finishes about 10 a.m.; consequently, I need hardly point out, it is impossible to have the work attended to simultaneously, or even approximately so, in all the bungalows and, as a result, some residents are bound to receive attention later than others. These residents make their bathing arrangements accordingly, as they know the time that the sanitary man attends to their particular bungalow. The pails being emptied are scoured and a certain quantity of clean shingle and salt water is deposited in the water-closet pail.

The theatrical picture painted by your correspondent in such lurid colours depicts a scene that only has being in his own imagination. The sea is the most powerful natural deodoriser in the world and the infinitesimal amount of soil emptied from these 200 bungalows into a vast and ever-moving body like the ocean leaves in a few seconds nothing offensive to sight or smell. In even any well-regulated house the conditions are not so favourable. There, when the commode is used, it has to be taken through the passage of the house. In the case of the bungalows the pails are drawn through a trap-door straight into the open air. Then, again, in depositing into the sea we are only following out, on a very small scale, the example of Brighton, Worthing, and other places. Brighton, with something like 180,000 inhabitants, empties its sewage at low water on to the shore and the same thing occurs at Worthing. The medical officer of health has examined these bungalows and has expressed his entire satisfaction with them. Several medical men own bungalows and consider the place the healthiest of communities. It is true that now and then a "crank," whose hypersensitive ideas lead him into hysterical denunciations, appears in our midst, but the opinions of such are treated at their true valuation by those who really know what a bungalow sanitation is. If your correspondent is so disgusted I am surprised that he should rent one of these habitations and recuperate his health in such a fœtid atmosphere.

I am, Sirs, yours faithfully,

Shoreham, August 21st, 1903. Wm. Swales.

PICRIC ACID IN THE TREATMENT OF BURNS.

To the Editors of The Lancet.

Sirs,—I think your correspondent Mr. J. Johnstone Rodmond may be interested by a brief statement of my experiences with regard to the use of picric acid in burns. For two years I was resident medical officer at the Bolingbroke Hospital for Accidents in Wandsworth, and in this institution we were called upon to treat an astonishing number of this class of cases. We used picric acid invariably, the strength of the stock solution being 1 in 200, used on lint with the addition of an equal quantity of warm water. This strength is, I believe, quite as efficacious as would be a stronger solution. Not only is its application painless, but it seems actually to nullify pain in a surprisingly short time. One case especially stands out very vividly in my mind and a word about it will answer the query as to whether harm is likely to result from its prolonged use. The patient was a little girl, aged about five years, who was under the impression that an admirable way of getting thoroughly warm would be to sit in an oven. The result was disastrous, for the poor child was burnt from the occiput to the nates—a deep burn—involving the entire back. She was with us nearly a year, during which time we found that picric acid was by far the best dressing. Towards the end a slight plastic operation was deemed necessary. Eventually the patient made a perfect recovery.

No remedy is so swift to cure as picric acid, although the above case may seem to belie this statement; it must be remembered, however, that we were dealing with a truly terrible lesion—one which I am convinced must have been fatal had any other treatment been adopted.

While on the subject I may say that in several cases of severe burns there was a marked and repeated tendency to collapse; eventually I gave orders that in all my cases, whenever the temperature became markedly subnormal, a rectal injection of warm saline solution should be given. The results from this were most satisfactory.

In conclusion, I may tell your correspondent that burns treated with picric acid are almost entirely free from smell. In every way I feel sure that he will find it the very best dressing yet known.

I am, Sirs, yours faithfully,

Eric M. Perkins, M.R.C.S. Eng., L.R.C.P. Lond.

Richmond, August 24th, 1903.

◆

L.R.C.P.E. & R.C.S.E.—We do not approve of the suggested plate and we are certain that our correspondent would find that his medical colleagues would also dislike the innovation. But we do not suppose that the General Medical Council would find that any professional fault had been committed. The better course would be for the new comer to communicate to the medical profession in the town the direction of special practice which he intends to follow.

Bar.—Our correspondent's course is to apply to the Treasury Office of one of the Inns of Court for a copy of the regulations concerning admission to the Inn of Court of which he may choose to be a member. There are four Inns of Court—viz., Lincoln's Inn, the Middle Temple, the Inner Temple, and Gray's Inn.

Irish.—"First Aid to the Injured," by S. Osborne, F.R.C.S. The St. John Ambulance Association, St. John's Gate, Clerkenwell, also publishes diagrams and a syllabus which will be found useful to those desirous of giving lectures.

Medicus.—Our correspondent will find the information for which he asks us in the Students' Number of The Lancet, which will appear on Sept. 5th.

During the week marked copies of the following newspapers have been received: *Revista Medica de S. Paulo, The Bulletin (New South Wales), Prince Alfred Hospital Gazette (Sydney, New South Wales), Bristol Press, Glasgow Daily Record, Daily Mail, Times, Morning Advertiser, Morning Post, Daily News, Daily Chronicle, The Engineer, Evansville Courier (Ind. U.S.A.), Sunday Journal News (Ind. U.S.A.), Hong-Kong Telegraph, The Welshman (Carmarthen), Westminster Gazette, Hertfordshire Mercury, Windsor and Eton Express, South Wales Daily News, Manchester Guardian, City Press, Mid-Sussex Times, Walsall Advertiser, Herts Advertiser, Times of India, Mining Journal, Local Government Chronicle, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 27th, 1903.

e	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
21	29 57	W.	0·27	116	63	54	55	57	Cloudy
22	29 84	S.W.	...	112	70	52	55	58	Hazy
23	29 82	S.W.	...	113	69	52	54	59	Fine
24	29·74	S E.	0 10	111	67	54	56	57	Raining
25	29·71	W.	0 63	79	60	55	56	58	Raining
26	30·22	S.W.	0 08	110	68	50	53	56	Fine
27	30·11	W.	...	119	71	56	57	60	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

P.M.),
ondon

.), St.
West-

Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9 30 A.M. and 2.30 P.M.), Throat Golden square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square

), London (2 P.M.), Middlesex
University College (9.15 A.M.),
(1 P.M), St. Mary's (10 P.M.),
uy's (1.30 P.M.).

t the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic A.M.), the Royal Westminster Ophthalmic (1 30 P.M.), and the tral London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

London Hospital,
s: Surgical Cases.

London Hospital,
: Surgical Cases.

West London Hos
inson: Bacteriology

Vest London Hospital, Hammersmith road, W.).—5 P.M. Mr. Edwards: Rectal Fistula. (Lecture Room.)

IDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 30 P.M. Dr. Taylor: Medical Cases. (Medical Wards.)

EDITORIAL NOTICES.

IT is most important that communications relating to the litorial business of THE LANCET should be addressed *clusively* "TO THE EDITORS," and not in any case to any ntleman who may be supposed to be connected with the litorial staff. It is urgently necessary that attention be ven to this notice.

is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for ins
tion, must be authenticated
their writers—not necessarily

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE LANCET OF AUGUST 22ND.

THE Manager regrets that owing to an accident to the machinery employed in producing THE LANCET of August 22nd the type of several pages was destroyed, and many copies were thereby delayed in their issue to subscribers. Some few copies were also despatched before the corrected type had been examined. Any subscriber who binds THE LANCET and finds that his copy of the issue of August 22nd has page 552 wrongly given as "352" has a faulty copy, and should send a postcard to the Manager, THE LANCET, 423, Strand, W.C., requesting that a duplicate copy of August 22nd should be sent.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them! Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.				TO THE COLONIES AND ABROAD.			
One Year	£1	12	6	One Year	£1	14	8
Six Months	0	16	3	Six Months	0	17	4
Three Months	0	8	2	Three Months	0	8	8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

A.—Messrs. Ayrton, Saunders, and Kemp, Liverpool; A. E. C.; Messrs. Armour and Co., Lond.; Dr. J. M. Atkinson, Hong Kong; Messrs. Armbrecht, Nelson, and Co., Lond.; Messrs. Allen and Hanburys, Lond.; Mr. J. W. Arrowsmith, Bristol; Mr. J. S. Austin, Lenzie; A., Fordingbridge.

B.—Mr. J. W. Benson, Lond.; Mr. Arthur H. Burgess, Manchester; Mr. Harold Bentley, Southport; Dr. James Burnet, Edinburgh; Dr. W. J. Barclay, Brighton; Mr. E. Baker, Birmingham; Bradford. Sturminster Newton; Dr. D. Brown, Greenock; Dr. D. H. Baria, Dhrangdra, India; British Antitoxine Manufacturing Co., Lond.; Buntingford House Retreat, Buntingford, Medical Superintendent of; Birmingham, &c., Hospital for Skin Diseases, Secretary of; Bourne Castle Sanatorium, Belbroughton; Brighton, Hove, &c., Dispensary, Secretary of; Mr. C. Birchall, Liverpool; Brighton; Mr. E. T. A. Boyton, Lond.; Dr. T. B. Broadway, Dorchester; Messrs. Baiss Bros. and Stevenson, Lond.

C.—Mr. J. J. Cowan, Malvern; Messrs. Cosenza and Co., Lond.; Messrs. E. Cook and Co., Lond.; Messrs. T. Christy and Co., Lond.; Cumberland Infirmary, Carlisle, Secretary of; Chesterfield Hospital, Secretary of; Capsuloid Co., Lond.; Coventry and Warwickshire Hospital, Secretary of; Mr. J. Clark, Clay Cross; Dr. F. Foord Caiger, Herne Bay.

D.—Dr. H. K. Dawson, Ashtead; Dewsbury Infirmary, Secretary of; Mr. F. Davidson, Lond.; Mr. A. Davis, Lond.; Down District Lunatic Asylum, Downpatrick, Clerk of.

E.—Miss Eves, Llantwit-Major; Essex and Colchester Hospital, Secretary of; *English and American Gazette*, Paris; East Suffolk and Ipswich Hospital, Secretary of; Dr. Rudolf Eisenmenger, Piski, Hungary.

F.—Mr. W. J. Fanning, Holt; Messrs. Farebrother, Ellis and Co., Lond.

G.—Mr. H. Gale, Staines; Messrs. E. Gallais and Co., Lond.; Dr. John H. Galton, Lond.; Mr. L. M. Griffiths, Clifton; Guest Hospital, Dudley, Secretary of; Messrs. Gardiner and Co., Wisbech.

H.—Mr. E. C. Hadley, Dudley; Mr. C. S. Huntsman, Victoria, Australia; H. H. W.; Messrs. J. Harper and Co., Lond.; Dr. Wm. R. Huggard, Davos Platz; Dr. W. S. Handley, Lond.

I.—Messrs. Idris and Co., Lond.

J.—Mr. G. H. Jones, Deddington; Mr. J. E. Judson, Ashton-under-Lyne; J. G. M. L.; Messrs. W. and A. K. Johnston, Edinburgh; J. S.

K.—Mr. W. H. Kesteven, Lond.; Mr. Shiavax K. N. Kabraji, Bombay; Knighton Union, Clerk of; Dr. H. Kenwood, Lond.; Messrs. R. A. Knight and Co., Lond.

L.—Mr. H. Lawrence, Lond.; Leicester Infirmary, Secretary of; Leeds Trained Nurses' Institute, Lady Superintendent of.

M.—Dr. C. Martin, Angers; Dr. Charles Murray, Aberdeen; Messrs. Maple and Co., Brighton; Mr. G. A. Morton, Edinburgh; Manchester Medical Agency, Secretary of; Metropolitan Asylums Board, Clerk to; *Medical Review*, Lond., Editor of; Mr. Henry A. Matheson, Lond.; Dr. J. C. McWalter, Dublin; Dr. Albert E. Morison, West Hartlepool.

N.—Mr. Robert Newman, Lond.; Dr. E. Norton, Folkestone; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Mr. Joseph Offord, Hythe; Messrs. O'Halloran Bros., Lond.; Sir Lambert H. Ormsby, Dublin.

P.—Mr. Joseph Pereira, Exeter; Mr. A. de Prenderville, Cologne; Mr. Y. J. Pentland, Edinburgh; Preston Royal Infirmary, Secretary of; Messrs. Peacock and Hadley, Lond.

Q.—Queen Margaret's College, Glasgow, Secretary of.

R.—Dr. W. Robertson, Tarporley; Mr. H. Rainbird, Saxilby; Mr. E. J. Reid, Lond.; R. K. D.; Messrs. Robertson and Scott, Edinburgh; Messrs. W. A. Ross and Brother, Lond.; Dr. J. Reid, Lond.; R. J. M.; Dr. C. Rolleston, Dudley; Dr. Paul Roethlisberger, Baden.

S.—Mr. S. G. Shattock, Lond.; Dr. D. Lloyd Smith, Bowden; Mr. D. Samuel, Acton; Messrs. Smith, Elder, and Co., Lond.; Messrs. J. Stott and Co., Oldham; Sanitary Wool Wood Co., Lond.; Mr. Kenneth Scott, Lond.; Mr. E. Noble Smith, Lond.; Salford Royal Hospital, Secretary of; Miss Sarah H. Smith, Landour, India; Dr. W. H. Stennett, Oak Park, Illinois; Scholastic, Clerical, &c., Association, Lond.; Selkirk Minns Co., Lond.; Dr. Sieveking, Paramé; Mr. T. Slater, Tunbridge Wells; Dr. G. E. Shuttleworth, Brockenhurst.

T.—Mr. J. Cleasby Taylor, Las Palmas, Grand Canary; Tottenham Hospital, Lond., Secretary of.

V.—Mr. G. Vickers, Lond.

W.—Dr. G. M. Wilson, Capel Mr. E. Stanley Wood, Wanste Messrs. H. Wilson and S Lond; West Ham Hosp Secretary of; W. H. F.; Dr R Williamson, Manchester.

Y.—Mr. Yates, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. W. H. Allen, Hurst Hill; Administrator, Lond.; A. R. H.; A. G.; A. M.; A. L; A. W. H.; *American Medicine*, Philadelphia, Managing Editor of.

B.—Mr. G. W. Brown, Hanley; Mr. J. Boot, Nottingham; Birmingham Skin Hospital, Secretary of; Dr. J. M. Barbour, Ramsey; Mr. K. H Bhangara, Bollington; Messrs. Burroughs, Wellcome and Co., Lond.

C.—Dr. D. McK. Crooks, Nenthead; Cheltine Foods, Cheltenham, Secretary of; C. H.; C. S.; Messrs. Cassell and Co., Lond.; Mr. A. J. Counsell, White Cliffs, New South Wales; C. E. W.; C. L. B.; Mrs. Chapman, Lond.

D.—Messrs. Down Bros., Lond.; Devonshire Hospital, Buxton, Secretary of; D. D.; Mr. H. Dwyer, Banbury; Doctor, Lond.; Dr W. Duncan, Pittsburg.

E.—Mr. W. R. Edwards, Lond.; Mr. J. Edwards, Liverpool; E. H. H.

F.—Mr. R. H. Fleming, Glasgow; Messrs. J. S. Fry and Sons, Bristol; Mr. H. McG. Forbes, Cuminestown; F. N. B.

G.—Mr. E. J. Geary, Warrington; Dr. J. A. K. Griffiths, Knighton; G. F. T.; Mr. T. Gray, Newbridge; G. H. G. D.

H.—Dr. C. Hunter, Ambleside; Mr. C. M. Hearnley, Plaistow; Miss Hinnell, Kingston-on-Thames; H. G. S; H. G. P.; Mr. J. Heywood, Manchester; Mr. F. Heubeck, Wednesbury; Messrs. Haswell Bros., Wrexham; Miss Haines, Lond.; H. D.; Mr. J. Howard-Jones, Launceston; B. Whitworth Hird, Ltd., Norwich.

I.—International Plasmon.

J.—J. A. M. M.; J. G. M.; J. H. M.; J. T. C. C.; J. J. C.

K.—Mr. W. Kirwan, Oranmore; Mr. E. T. Kendon, Goudhurst.

L.—Mr. H. K. Lewis, Lond.; Mr. T. Llewellyn, Ogmore Vale; Messrs. Lee and Nightingale, Liverpool; Liverpool Stanley Hospital, Secretary of.

M.—Mr. R. Mosse, Berlin; Mes Mills and Allibon, Liverp Medicus, South Norwood; Myra Mackenzie, Aberde Dr. A. Marriott, Aldebur Dr. H. C. Marr, Lenzie, A. R. MacGregor, West Malve Manchester Southern Hosp Secretary of; M. A. B.; Mes Moss and Potter, Thetfo Dr. D. J. McAdam, Kirke bright; Monkwearmouth Southwick Hospital, Secret of.

N.—Dr. J. T. C. Nash, Southe Mr. J. W. Norman, Ashburto

P.—Mr. R. W. Pearson, Devi Mr. J. Parkinson, Thorn Mr. J. S. Parkes, Maidenhe Dr. G. M. Pittock, Marg Mr. A. Pellant, Lond.; Dr. W. Pritchard, Blaenau Festini Palmer Memorial Hosp Jarrow-on-Tyne; Mr. F. Pow Peak Hill, Western Austral P. S. W.; Mr. T. Prince, Lon Messrs. Phillipson and Gol Chester; Principal, Brighton.

R.—Royal United Hospital, Ba Secretary of; Royal Alb Edward Infirmary, Wigan, Sec tary of; C. D. J.

S.—Mr. J. Scheichelbauer, Lon Mr. D. Sen, Buxar, India; H. L. Swanger, San Franci U.S.A.; S. J. C. F.; Surge General W. B. Stevenson, Lon *Sheffield Independent* Mans of; Seltzogene Patent Char Co., St. Helens; Spa, Belgiu Town Clerk of; St. Peter's H pital, Lond., Secretary of.

T.—Mr. R. Thomas, Stockt Heath; Mr. J. Thin, Edinburg Mr. E. R. Taylor, Liscard.

U.—Dr. T. H. Underhill, Lon U. C. B.

V.—Mr. B. T. Vickers, Leeds; G. Vogt, Kendal; V. A. S.

W.—Mr. T. Watkins, Pontypoo Dr. T. A. Wood, Douglas, Isle Man; W. C. R.; West Ridi Asylum, Wakefield, Clerk o Dr. E. E. Wood, Huddersfiel Mr. A. Wigglesworth, Liverpoo Miss J. H. Williamson, Guil ford; Mr. C. H. Whitefor Plymouth; W. L.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

*Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 5, 1903.

An Address to Students.

THE decision as to a profession is certainly one of the most momentous which a young man has to make. On a judicious selection may depend his happiness and certainly will depend his chief occupation for life. Let his choice therefore be made with care, for it is almost irrevocable. A small proportion, it is true, of those who commence the study of medicine relinquish it before qualification and enter on some other sphere which they imagine will prove more congenial; but to very few is this possible, and therefore the student should recognise that the choice once made is made for life. It is fortunate that few students have to rely entirely on their own ideas and wishes in such a matter; their parents and friends can materially assist them in this important step. And it is well that this should be so, as only young men of more than average individuality can tell unerringly what may be their natural bent. We may take it for granted that such a small percentage of those whom we are addressing are now entering the medical profession in opposition to parental control that their number may be regarded as a negligible quantity. Still, of the considerations that should influence a young man in deciding to follow the medical profession the most powerful should be that he feels in himself a true "vocation" for it; he must believe that he has a natural inclination for the practice of medicine. He should at the same time appreciate the high character of the profession, and though hoping and expecting to earn his livelihood from it he should not regard it as a mere method of making money. Other considerations will, of course, be certain to have entered into the choice. A medical man with a good, old-established practice naturally desires that his son should follow in his footsteps, share in his work, and ultimately succeed to the practice. This is very natural, and if the son has a liking for the work, as generally he has, no arrangement could be more suitable; but if he has merely a distaste, or even more, if he has an active dislike, it is surely a grievous mistake to insist on the boy commencing unwillingly the study of medicine.

Another point which has to be carefully considered before a medical career is undertaken is the question of money. The mere fees charged by the schools of medicine vary between £110 and £160 for the five years' course, and to this has to be added the cost of extra fees, instruments, and books, while subscriptions to the various societies and clubs of the hospital, have also to be thought of. Many students at some portion of their career require "coaching" and this adds to the expense. Moreover, the cost of living for five years has to be provided for, so that it will be seen that the total cost of the whole medical education at the very minimum must amount to over £500 and may easily reach £1000 or £1200 without any grave extravagance on the part of the student. The cost of a medical education is, in fact, quite serious nowadays, and we think that the student should recognise this, as in some cases his long career of pupillage entails grave burdens upon his parents. And he should remember that in our rough estimate of the cost of his support during his five years of study we are supposing him to pass all his examinations at the first attempt, for one or more failures may materially lengthen the course and enhance the expense. Should a student live at home the expense of living will be reduced, but even then the total cost of a medical education will reach a large amount. Many students enter on the study of medicine with insufficient funds to enable them to attain to qualification and trust to teaching and to earning money in various ways, as by dispensing for medical men in the evenings, for obtaining the residue, but too much reliance should not be placed on these very precarious methods of supplementing financial deficiencies. The time available for study in ordinary circumstances the student will find in no way too great for acquiring a good knowledge of his profession, and if this period is abbreviated by the devotion of a part of it to earning money the essential work must suffer. No longer do unqualified assistantships hold out any hope of financial aid to students in need, and we do not think that the disappearance of this source of income is to be in any way regretted, for only too often it led to the student becoming permanently an unqualified assistant. Still, many students have succeeded in one way or another in earning a portion of the cost of their training, and we would not endeavour to hold back anyone from attempting it if he feels equal to the strain; we would only point out that it is a task which requires energy and determination above the average.

Having decided to enter the medical profession, the student has to choose the avenue by which he will approach it. There are 22 institutions which possess the power of conferring a degree, diploma, or licence to practise, and though the number is somewhat reduced by the grouping of several for examination purposes, yet many doors remain by which the student may enter. It would be invidious to institute comparisons between the various diplomas, but we would urge all who intend to engage in general practice to strive to obtain the degree of Doctor of Medicine. Even from a pecuniary point of view a degree is of value to most medical men, for a section of the public insists that a degree implies a higher standard of attainments. Of course it does nothing of the sort, but we would point out that on the whole the course of training required for a degree is more extended and more valuable than that needed for a diploma, even though there is not a medical school without examples of successful candidates for the former having failed to pass the tests for the latter. Before, however, he can commence the study of medicine the student has to pass an examination in general knowledge. The selection of an entrance examination is of considerable importance; for should the student make an injudicious choice he will regret it if, when he is advanced in his studies, he wishes to take a higher qualification than he had aimed at in the first instance. Of course, if he intends to take the degree of Doctor of Medicine at one of the universities he must pass the preliminary examination belonging thereto, but if he aims primarily at the diplomas of the Conjoint Examining Board in England or at any similar qualification, he would do well to pass the matriculation examination of the University of London, for this will admit him to the examinations of all the qualifying bodies except those of the other universities. Then he can proceed to the medical degrees of the University of London should he at any time feel inclined to do so without having to make an irksome return to school subjects. It was formerly urged against this matriculation examination that it was extremely hard, and there was some excuse for the complaint, though we think the difficulty of passing it was over-estimated, for few students who had undergone a suitable course of study failed to pass it. Recently, however, the examination has been greatly modified and its requirements have been so whittled down that it cannot now be described as difficult, though it remains a good test of general knowledge. In this connexion we may say that a good foundation of general knowledge is of inestimable value to the student of medicine, for the recent advancements of science have greatly widened the basis of medicine. So many of the terms used in science are derived from Latin and Greek that even a slight acquaintance with these languages will prove of distinct use in grasping the meaning of and remembering medical terms, while the nomenclature of pathology becomes more and more complicated hourly. French and German are of occasional value to the student, while he is a student, and may be very useful to him in later life.

The preliminary examination successfully passed, the selection of a medical school follows, and many parents have no difficulty in the choice; for instance, the son of a medical man usually goes to the school where his father was educated, or some medical friend recommends the hospital at which he himself studied. Where there is no predetermination towards a school, the choice is difficult, but we are writing at a date so near to the opening of the schools that in all probability most of the new recruits to our ranks have already chosen their hospitals. Sometimes the name of some widely known member of the staff of the hospital decides the question, though this should not be allowed too much weight. Medical schools may be roughly divided into large and small schools. In some respects a large medical school has advantages, for as a rule a large hospital is more thoroughly equipped for the work of teaching and also provides a larger amount of clinical material. The larger choice of companions, also, and the greater facilities for athletics will form additional inducements to many students. The prizes and exhibitions at the larger schools are more numerous and of greater value than at the smaller hospitals. The differences in the extent of the arrangements for teaching are, however, much less now than they were, for many of the smaller medical schools have recently made great exertions to bring up their equipment to the standard required by our present knowledge. Moreover, there are compensating advantages at the smaller schools, for as there are fewer students they are generally better known to their teachers and to one another, and thus there is a greater feeling of *camaraderie*. The smaller school, too, often affords to each of its students a larger number of cases in the wards, though the total number of patients may be less. There is a further argument in favour of the smaller medical school: if a student wishes ultimately to gain a post on the staff of the hospital it is easier to accomplish this at a school where the competition is not as a rule great than at one of the larger schools where it generally proves very difficult to obtain a staff appointment. It will thus be seen that there is about as much to be said for the small school as for the large school and no student need feel that his choice of a school has in any way handicapped him from the beginning. We can assure him that within his school, which ever it may be, he will find not only more to be learned than any examiner will expect him to know, but more than he can ever hope to assimilate.

We will now briefly review the professional curriculum. The subjects which engage a student's attention during the earliest portion of his course are physics, chemistry, and biology. The examination in these can often be passed before the student enters at a hospital, and this is the best arrangement for him, though it is one which is open to abuse and is viewed with suspicion by the General Medical Council. These preliminary scientific subjects should certainly be passed before the student commences the study of anatomy and physiology, for if any of them are left behind through failure at the examinations the necessity for studying them again—that is, of going over old ground, will sadly interfere with the student's career. Physics, chemistry, and biology are naturally of some importance, not so much on their own account as because they assist in the study of the later and more truly important subjects. At present there is rather a tendency to exaggerate the value of these preliminary scientific subjects both on the part of the lecturers and of the examiners also. Still, a measure of knowledge of them is essential to the student and therefore he will do well to acquire it.

The subjects of the second portion of the student's course are anatomy and physiology. These are vastly more important than the earlier studies, for they form the true foundation for the study of medicine and surgery, and of the two anatomy is the more valuable. With a faulty knowledge of anatomy a surgeon is always in danger of inflicting injury on structures with which he unexpectedly meets, and a physician feels his ignorance of the organs which he investigates when he finds himself in front of an obscure case that awaits his diagnosis. We do not underrate the importance of physiology, we would merely urge that its value in practice is transcended by that of anatomy. It is only by dissection that anatomy can be really learned. To attempt to study anatomy by reading alone is sheer waste of time, for the knowledge so acquired is inapplicable to the living body; it remains mere book knowledge and cannot be used when it is needed. In both these subjects, as also in those which he studies later, the student should attend lectures regularly as well as take full advantages of all practical instruction. It is nowadays somewhat the fashion to decry lectures as useless, for it is said that text-books are so numerous and complete that lectures can only be mere vain repetitions of what is more easily to be found in books; but the *vox viva* of a lecturer may impart a charm to a subject which is sought in vain in a printed book, and with a good teacher attendance on a course of lectures forms alike the simplest and the pleasantest method of gaining knowledge; and should any point be obscure the student has the benefit of the lecturer's personal elucidation of the doubt. But the student must be receptive, ready and willing to learn. As to the question of notes, we advise the student to take brief notes of the lectures —for this serves to concentrate his attention on the subject dealt with—and to write them out afterwards, for in this way he revises and confirms the knowledge which he gained in the lecture room. To attempt to take verbatim or even extensive notes of a lecture is by no means advisable, for if this is done attention is devoted to the words rather than to the substance of the lecture, and much valuable time is wasted in transcribing so large an amount of matter. A very valuable preparation for a lecture is to read up the subject in some standard text-book beforehand; in this way it is far easier to appreciate and to absorb the lecturer's teaching. Attendance at lectures will not preclude the need for a text-book, for the student will wish to revise what he has already learned; and there are so many works on all the subjects of the medical curriculum that there is no small difficulty in choosing one. In this and in all other similar matters the student will do well to ask and to follow the advice of his teachers, in addition to reading our article upon the Student's Library in this issue of THE LANCET. In all medical schools at the present time there are extra classes for the testing of the student's knowledge; so many extra classes, indeed, that some whose opinion is of value are inclined to think that the system is carried too far, so that the student is, as it were, spoon-fed. Be this as it may, these tutorial classes should be attended with regularity by all who find that they have difficulty in getting their knowledge stored in their brains in an orderly manner.

The final subjects, medicine, surgery, and midwifery, form the real object of the student's education, and to these his latest and fullest efforts will be directed. Fortunately he generally prefers these subjects to the anatomy and physiology of the earlier years of his course. They have to do with medical practice itself and he can appreciate their bearing upon the future occupation of his life. To the thorough study of these he must devote all his energies, and here, again, it is the practical work which is of the most vital importance. No amount of reading will compensate for neglect of clinical work, and this is true with regard both to examinations and to practice itself. The clinical work in the wards and in the out-patient room must have the student's most earnest attention. He must check his reading by the cases which come under his notice, and in this way he will find that many passages in his text-books which seemed mere verbiage become essential truths. He will remember them and reproduce them either at the demand of an examiner or at the need of a patient. And there is one department of a hospital which should in no wise be neglected by the senior student, and this is the post-mortem examination room. Here can be seen the underlying conditions which have given rise to the symptoms and physical signs; here diagnoses are confirmed or disproved and obscure cases made clear; in fact, here can be learnt as much of the ways and methods of disease as in the wards. Some years ago *Punch* contained the jest that the reason for the high reputation of a certain foreign school of medicine was the care which the physicians there exercised in always confirming their diagnoses by necropsies. We may use the jibe as an indication of the very great value of the work done in the post-mortem room. And here an important word of warning. In dealing with the sick in hospitals there is a tendency on the part of some students to disregard their feelings. This is done not from any real callousness but merely from forgetfulness. This tendency needs to be guarded against. It must constantly be borne in mind that many patients go to a hospital in fear and trembling; they may have suffered much and they may even be awaiting a sentence of death from the mouth of the physician. To such as these all kindness and pity should be shown and even if the malady is slight the complete separation from relatives and friends in a hospital ward must be keenly felt. Even to put it on the very lowest plane, to treat hospital patients in an off-hand manner is not a good preparation for private practice.

When a medical man has received his diploma he has by no means come to the end of his studentship; though he has become qualified to practise he has still much to learn. It is noticeable that no medical man knows so many things as one recently qualified; but after qualification he will find that he has much to learn as well as to unlearn. Diagnoses which appeared to be infallible prove to be erroneous, cases occur with anomalous symptoms and signs which refuse to accord with any orthodox disease. Drugs decline to have the effect which works on therapeutics ascribe to them. Thus, learning and unlearning extend throughout the life of the practitioner and every medical man is a student all his days; nearly every case he sees will teach him something and each succeeding year adds its quota to his knowledge. When a student has become qualified he has to learn to act for himself. During his student days he has leaned on someone else, he has carried out the instructions of a member of the staff of the hospital or of one of the resident medical officers, but now he has to stand alone. Probably the most valuable method for a medical man to become self-reliant is to take a post as resident medical officer at a hospital. If it be possible he should hold this post at his own hospital, and this is nearly indispensable if he aims at a position on the staff; but the number of resident posts even at the largest hospitals is small, and therefore it must happen that the majority of the students have to seek elsewhere for resident appointments. There are hospitals of all sizes in different parts of the kingdom which, having no medical school attached, seek elsewhere for men as house surgeons and house physicians, and one of these posts is generally obtainable without any great difficulty by a student who has worked well. Some of the appointments are paid and some are not, but even if there be no salary attached the experience gained is an ample reward for the time expended. A resident post is valuable, for it affords a large amount of experience in a comparatively short time and the resident learns to act promptly in emergencies. If at any time he feels himself out of his depth his fellow residents will gladly give him all the assistance in their power, and if any further aid be needed his chiefs will willingly place their knowledge at his disposal.

The six months during which such a post usually lasts will come to an end all too soon and few there are who do not view with regret the termination of their period of resident appointment. When the young medical man has held a resident post a very pleasant and health-giving prelude to engaging in practice is to take the post of surgeon to a passenger ship for one or two voyages. The duties are, as a rule, not very heavy and afford ample leisure. The surgeoncy to a liner should succeed the holding of a resident post, for we consider it unfair to entrust the health of a shipload of passengers to the skill of an untried medical man.

We have now accompanied the medical student from his preliminary examination to the time when he is ready to enter on the practice of his profession, whether it is his lot to enter one of the services, to become a general practitioner, or to attempt success in the ranks of the consultants. Much of what we have said is so obvious a comment upon the career that has already been chosen by those whom we are addressing that the lessons contained in our words cannot be new. These things have mostly either occurred to their minds or have been told them. Still, we think that a purpose is served by the repetition. We want to confirm in those who now stand upon the threshold of medical life a sense of their responsibilities. They have taken up a calling where much will be asked of them but where the prizes are few, and the training to be undergone is in keeping with the future thus outlined. The medical student who desires not to fail must work hard, must live cleanly, must cultivate his sympathies as well as his brains, and must be modest but resolute.

THE STUDENT'S LIBRARY.

WE continue to suggest for the benefit of the medical student a list of books which he will find useful in the course of his professional career, but every year it becomes clearer that out of the vast choice of manuals now at his disposal it is less and less important which particular one he selects. Of late years many new books have been written and a great general advancement in certain valuable qualities has been imported into their writing. The English medical text-book of modern days has become as orderly as its French and German predecessors were wont to be, and an effort has been made all round towards perfect clearness. We have had few books where the teaching was not founded upon the practical knowledge of the author and where the lessons which the author desired to convey have not been definite and intelligible. The purely book-making treatises which used to be to a considerable extent of American manufacture are now, sad to say, produced with some freedom by our own medical authors, but we think that the publishers could tell a tale concerning the circulation of these works that their authors would rather not have unfolded. No books are freely bought except the useful ones, and to counterbalance a profuse output of rubbish on both sides of the Atlantic we have from America some excellent literary work. We must not lose sight of the fact that to American enterprise, industry, and erudition we now owe an extensive medical literature. In particular do the authors and publishers of the United States excel in the production of great dictionaries and encyclopædic compilations of monographs by many writers. From these three things—the large supply of text-books, their excellent and authoritative nature, and the addition of many valuable American works to our library—arises a great difficulty for anyone who should attempt to suggest to the student what should and what should not be the book he ought to buy. The reviewers in our columns have reported equally well upon two or three different text-books of surgery and two or three different text-books of medicine, and in the special branches of professional knowledge it is even more difficult than when dealing with comprehensive treatises to say which book *par excellence* should be recommended to the student.

BOOKS RECOMMENDED FOR THE DOUBLE QUALIFICATION OF THE ENGLISH ROYAL COLLEGES.

In the list which appears below we have again, as in previous years, taken the examinations for the double diplomas of the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England as the type of the tests which every student works to pass. He may not do so much and he may do more: the abovementioned qualifications are good and representative ones and are sought by a very great number of medical men whether they proceed to graduate at a university or not. And here a few words may be said about the multiplication of local universities. The institution of new degree-granting bodies in the provinces may in the future lessen the number of men competing for the diplomas of the different Royal corporations, but this has not as yet occurred to any extent. The great number of candidates for the degrees of the provincial universities pass the examining boards of the corporations first, and very often must find that the tests that they have already undergone are as severe as any they are later asked to undergo. It is unnecessary, and indeed impossible, to make any attempt to suggest text-books to be read for these particular medical degrees. The lecturers in the various faculties at the universities will suggest to their students the manuals to be read and, having regard to the fact that the majority of their students will desire to belong to a corporation as well as to a university, it is probable that the books recommended as necessary for instruction on the general subjects will in the main be the same as we now set down.

The following are the text-books recommended by the consensus of opinion of a representative group of London teachers for the examinations of the London Conjoint qualification, the list being not much altered from the one which we published in the Student's Number last year :—

FIRST EXAMINATION.

Chemistry.—LUFF'S *Chemistry* (Cassell, 7*s.* 6*d.*).—This book was written with a view to this examination and contains exactly the right material. ATTFIELD'S *Chemistry* (Gurney and Jackson, 15*s.*) is also recommended. A new edition has just been published. CORBIN and STEWART'S *A Handbook of Physics and Chemistry* (J. & A. Churchill, 6*s.* 6*d.*) is excellently adapted to the requirements of this examination.

Physics.—DANIELL'S *Physics* (Macmillan and Co., Limited, 4*s.* 6*d.*).—ALDOUS'S *Physics* (Macmillan and Co, Limited, 7*s.* 6*d.*).—The student will only require selections which should be made in accordance with the advice of his teachers.

Pharmacy.—HALE WHITE'S *Materia Medica* (J. & A. Churchill, 7*s.* 6*d.*).—A new edition (the eighth) was published this year. *The Science and Art of Prescribing*, by E. H. COLBECK and A. CHAPLIN (Kimpton, 5*s.* net), is a valuable little introduction to the practical application of materia medica, and will be useful to the student when he reaches the wards. *Practical Pharmacy and Prescribing*, by JAMES CALVERT (H. K. Lewis, 4*s.* 6*d.*) is a trustworthy notebook which is in use by the students at St. Bartholomew's Hospital.

Biology.—P. CHALMERS MITCHELL'S *Outlines of Biology* (Methuen, 6*s.*).—The book was written with a view to this examination and a revised edition, bringing the treatment of the subject up to date, was published in 1902. The book is frankly only an introduction and we recommend the student to extend his biological reading, if only in a desultory manner, to the works of HUXLEY.

SECOND EXAMINATION.

Anatomy. — GRAY'S *Anatomy* (Longmans, 32*s.* net).—QUAIN'S *Anatomy* (Longmans, in nine parts at different prices). — MORRIS'S *Anatomy*. A new edition (the third) 1902 (J. & A. Churchill, 30*s.* net).—The first of these treatises is sufficient by itself, while the article in it upon osteology is unequalled. The books of QUAIN and MORRIS contain matter that is not essential for the examination under consideration, but all who aspire to the honour examinations must have and read them. The same may be said for the *Manual of Practical Anatomy*, by the late Professor ALFRED HUGHES and Dr. ARTHUR KEITH, which is now completed (J. & A. Churchill; Part II. and Part III., published this year; 8*s.* 6*d.* and 10*s.* 6*d* respectively.)

Physiology.—HALLIBURTON'S *Kirkes' Physiology*, fifth (being the eighteenth edition of *Kirkes' Physiology*) edition, J. Murray, 14*s.*)—The omission of FOSTER'S *Physiology* here may strike some as extraordinary. It is the best text-book in English and written in perfect literary style, but it does not supply the medical student with sufficient cut-and-dried answers to questions which are sure to be set him at this examination. HALLIBURTON'S *Kirkes* is therefore the book to be recommended for the average student, but by all means let him enlarge his knowledge by reading FOSTER'S or STEWART'S book if he finds that he can swim in deeper water.—HALLIBURTON'S *Chemical Physiology* (Longman's, 28*s.*).—SCHÄFFER'S *Course of Practical Histology* (Smith and Elder, 7*s.* 6*d*) — SCHÄFFER'S *Essentials of Histology* (Longmans, 9*s.* net).—BRODIE'S *Essentials of Physiology* (Longmans, 6*s.* 6*d*).—These four books should be read to supplement HALLIBURTON'S *Kirkes' Physiology* — STARLING'S *Elements of Human Physiology* (J. & A. Churchill, 12*s.* 6*d.*) is in its fourth edition and is also an excellent text-book.

THIRD EXAMINATION.

Medicine.—OSLER'S *Principles and Practice of Medicine*, fifth edition, thoroughly revised (Henry Kimpton, 18*s.* net).—A clear and well-arranged book, perfectly up to date.—TAYLOR'S *Manual of the Practice of Medicine* (J. & A. Churchill, 16*s.*). All students who can afford it should possess this book too.—CARTER'S *Elements of Practical Medicine* will serve as a sound foundation (H. K. Lewis, 10*s.* 6*d*).

Applied Anatomy.—TREVES'S (assisted by ARTHUR KEITH, M.D.) *Surgical Anatomy*, new edition (Cassell, 9*s.*).—HOLDEN'S *Landmarks, Medical and Surgical* (J. & A. Churchill, 3*s.* 6*d.*) also thoroughly deserves the popularity it has so long enjoyed as a book on applied anatomy, while the supplementary volume on Surgical Anatomy in QUAIN'S *Anatomy* by THANE and GODLEE (Longmans, 6*s.* 6*d*) is excellent.

Pathology.—GREEN'S *Pathology* (Renshaw, 17*s.*).—LAZARUS-BARLOW'S *General Pathology* (J. & A. Churchill 21*s.*). —BOWLBY'S *Surgical Pathology* (J. & A. Churchill, 10*s.* 6*d.*) —CURTIS'S *Essentials of Bacteriology* (Longmans, 9*s.*).—Of course, it will be well if the student can find time to read the larger works of Crookshank and Sternberg.

Materia Medica —MITCHELL BRUCE'S *Materia Medica* (Cassell, 7*s.* 6*d.*).

Forensic Medicine.—[illegible] 24*s.*).—AUBI [illegible] (Simpkin, 10 [illegible] but we recommend the student also to read the larger treatises by TAYLOR and STEVENSON (J. & A. Churchill, 31*s.* 6*d.*) or DIXON MANN (C. Griffin and Co., third edition, 21*s.*). Forensic medicine is interesting reading, so that a big book should have no terrors.

Public Health.—PARKES and KENWOOD'S *Hygiene*, second edition (Lewis, 12*s.*).—This book is practically the seventh edition of Dr. Louis Parkes' *Hygiene*, WHITELEGGE'S *Hygiene* (Cassell, 7*s.* 6*d.*).—*Hamer's Manual of Hygiene* (J. & A. Churchill, 12*s.* 6*d.*).—*A Book of Hygiene* (C. Griffin and Co., Limited, 8*s.* 6*d.* net), by A. M. DAVIES, Lieutenant-Colonel R.A.M.C.—Each of these books is good and contains more than is required for the examination.

Surgery.—ROSE and CARLESS'S *Manual of Surgery*, fifth edition (Baillière, Tindall, and Cox, 21*s*).—This book contains all that is necessary for the examination and has been regularly kept up to date; but a student with any ambition will supplement his reading by consulting one of the three more comprehensive treatises which follow.—WALSHAM and SPENCER'S *Theory and Practice of Surgery* (J. & A. Churchill, 15*s.*) is now in its eighth edition and deserves its popularity. A new edition will be published in time for the October session. The student must also read JACOBSON'S and STEWARD'S *Operations of Surgery* (J. & A. Churchill, 42*s.*) or TREVES'S *Operative Surgery*, new and revised edition, two volumes, the second of which will be ready in the autumn (Cassell, 42*s.*). A new edition of JACOBSON'S and STEWARD'S work is issued this year.—ERICHSEN'S *Science and Art of Surgery* (Longmans, 48*s*), TREVES'S *System of Surgery* (Cassell, 48*s.*), and TILLMANN'S *Surgery* (Kimpton, 63*s* net) must be consulted as books of reference, while every student will find SPENCER'S *Outlines of* [illegible]e, Tindall, and Cox, [illegible]

Midwifer[illegible] J. & A. Churchill, 15*s.*) or DAKIN'S *Midwifery* (Longmans, 18*s*) is most exactly fitted for this examination. In Gynæcology we recommend, as on previous occasions, LEWERS'S *Diseases of Women* (Lewis, 10*s.* 6*d.*).—HERMAN'S *Diseases of Women* (Cassell, 25*s.*), and HERMAN'S *Difficult Labour* (Cassell, 12*s.* 6*d.*) should also be read.

The student should also read HARE'S *Practical Diagnosis*, fifth edition (Kimpton, 21*s.* net), which explains the use of symptoms in the diagnosis of disease. This book will, of course, only appeal to those in the fifth year of the curriculum, but to them it will prove very useful and suggestive. He must also read a Text-book of Ophthalmic Surgery; SWANZY'S book (Lewis, 12*s.* 6*d.*), of which a revised edition has just been issued, is suggested as containing all that he is required to know. He should also read RADCLIFFE CROCKER'S *Diseases of the Skin* (H. K. Lewis, 28*s.*), or, f this standard work appears too long, MALCOLM MORRIS'S *Diseases of the Skin*, new edition (Cassell, 10*s.* 6*d.* net), and a *Manual of Bacteriology* by HEWLETT (J. & A. Churchill, 12*s.* 6*d.*). With regard to the literature of bacteriology the student will probably be required by his teachers to use certain text-books and our recommendation is not intended to supersede their advice. The student must work in accordance with his class-mates.

This does not seem a very large library for a working man to read in a curriculum extending over five years, but if the books are read properly they will amply suffice. For they have to be thoroughly mastered and completely assimilated.

THE CHOICE OF BOOKS.

The selection of a text-book by the student of medicine is often extremely difficult, yet on a judicious selection of works for his reading depends much of his success at examinations. That this difficulty in choosing is felt by many is clearly manifested by the frequency with which we are asked to advise on a course of reading for some particular examination. We always answer these correspondents to the best of our knowledge, but we often find it impossible to name an individual book which will fulfil exactly the requirements. It must be acknowledged that whatever care be devoted to the making of a selective list the result will not be always perfectly satisfactory for every student. There is no work on any subject which is suitable for all candidates and all examinations. When there are two books of equal standing it may be impossible to say which is the better of the two, and it will be seen that we have in several cases given the reader choice of alternatives. The proper foundation for a student's knowledge must be laid in his lectures and his practical work. In some cases the lectures may entirely obviate the necessity for any text-book and we have known a candidate obtain the gold medal in medicine at the M.B. examination of the University of London who had never any acquaintance with a medical treatise. He had relied on his notes of what he had seen and heard, but, of course, this was an exceptional case. To practical work especially the student must pay attention, for the knowledge learnt by practice is much more easily retained than that learnt only from a book, but in nearly all cases a treatise needs to be read.

BOOKS RECOMMENDED FOR THE HIGHEST QUALIFICATIONS.

The list of books given above as necessary to be read before the student can make certain of obtaining the diploma of the Conjoint Board will if absolutely mastered go very far to take him through any honour examination—especially if his practical work be good and if he have an orderly mind and a ready wit, so that he is at his best during his tests; but in certain directions the aspirant for the medical degree of the University of London and the Fellowship of the Royal College of Surgeons of England must read more advanced works. The degrees of other universities may also require from their candidates a larger range of reading, but in these it is chiefly for the final examination, the standard of which is (or is expected to be) higher than the standard of the pass examinations of the various corporations. In the case of London University the increased stringency of the tests is felt from the beginning, although the matriculation is not so hard as it used to be; while the first examination for the Fellowship of the Royal College of Surgeons of England is one of the hardest and most uncertain examinations known to us. In making the suggestions which follow we premise in the student a knowledge of the simpler works.

For the Preliminary Scientific Examination of London University Rideal's *Practical Organic Chemistry* (Lewis, 2*s.* 6*d.*), Tilden's *Inorganic Chemistry* (J. & A. Churchill, 10*s.*), Remsen's *Organic Chemistry* (Macmillan and Co., Limited, 6*s.* 6*d.*), and Bernays' *Practical Chemistry* (J. & A. Churchill, 4*s.* 6*d.*) are recommended. Daniell's *Text-book of Physics* (Macmillan and Co., Limited, 21*s.*) should be supplemented by Deschanel's well-known volumes, Lowson's *Botany* (Clive, 6*s.* 6*d.*), and Wells and Davies's *Zoology* (Clive, 6*s.* 6*d.*). Mudge's *Zoology* (Arnold and Co., 6*s.*) is a book which is intended exactly to fit the needs of this examination, while the course of botanical reading should include Scott's *Structural Botany* (Adam and Charles Black, two volumes, 3*s.* 6*d.* each). For the first M.B. of the University of London and for the first Fellowship of the Royal College of Surgeons of England Morris's *Anatomy* (J. & A. Churchill, 30*s.* net) is, on the whole, the best text-book, but the student should also read Embryology by Schäfer and Splanchnology by Schäfer and Symington in Quain's *Anatomy* (Longmans, 9*s.* and 16*s.* respectively) and revise his osteology from time to time by Gray's *Anatomy* (Longmans, 32*s.* net) and his practical work by Cunningham's *Practical Anatomy* (Young J. Pentland, two volumes, vol. i., 10*s.* 6*d.*, vol. ii., 12*s.* 6*d.*) or Brodie's *Dissections Illustrated* (Whittaker and Co., 42*s.*). Professor Cunningham has also published a splendid *Text-book of Anatomy* (Young J. Pentland, 1903, 31*s.* 6*d.* net) written by himself and nine other competent contributors. The book is profusely illustrated with original drawings and much in it which deals with the topographical relations of the viscera departs considerably from convention. This is a book from which the able student can derive much suggestive information. For both these examinations Stewart's *Physiology*, fourth edition (Baillière, Tindall, and Cox, 15*s.*), or Foster's *Physiology* (Macmillan and Co., Limited, in four parts, 10*s.* 6*d.* each and appendix, 7*s.* 6*d.*) should be read.

For the final medical examinations of the great universities no different text-books are absolutely required to those suggested for the final examination of the Conjoint Board, but the student's reading should be regularly supplemented by studying the valuable monographs in Allbutt's *System of Medicine* (in eight volumes, sold separately, 25*s.* net each), the pages of the medical journals, and such works as Powell's *Diseases of the Lungs and Pleura* (Lewis, 18*s.*), Gowers's *Treatises on Neurology* (J. & A. Churchill, vol. i., 16*s.*; vol. ii., 20*s.*), von Jaksch's *Clinical Diagnosis*, fourth English edition (Griffin and Co., 24*s.*), and Judson Bury's *Clinical Medicine*, second edition (C. Griffin and Co., 21*s.*). The first volume of Savill's *System of Clinical Medicine* (J. & A. Churchill, 12*s.* 6*d.*) was published this year. It deals with local diseases and microbic disorders, much stress being laid on regional anatomy and the localisation of symptoms. A sound knowledge of bacteriology will also be expected of the medical graduates of the principal universities who must certainly be familiar with the modern views of the etiology and prevention of infective diseases. Sternberg's *Bacteriology* (J. & A. Churchill, 26*s.*) is among the best modern works. Crookshank's book, however, is now out of print. Hewlett's *Manual of Bacteriology* (J. & A. Churchill, 12*s.* 6*d.*) and Muir and Ritchie's *Manual of Bacteriology* (Young J. Pentland, 12*s.* 6*d.*) are also admirable treatises, and a new edition of each appeared last autumn. For the final surgical examination of the University of London (that for the degree of M.S.) and for the final F.R.C.S. the first thing for the candidate to remember absolutely is that his anatomical knowledge must be as perfect as it was at his previous tests. If it be taken for granted that the student has a thorough knowledge of such a text-book as that of Rose and Carless, then the book to read is Tillmann's *System of Surgery* (Kimpton, 63*s.* net). The book is thoroughly well written, comprehensive, and completely up to date. *A Manual of Surgical Treatment*, by W. Watson Cheyne and F. F. Burghard, has been issued in parts at prices varying from 10*s.* 6*d.* to 21*s.* by Longmans and is a valuable work, sound, practical, and up to date. Such monographs as those by Bland-Sutton on *Tumours* (Cassell and Co., 21*s.*) and on *Ligaments* (H. K. Lewis, 4*s.* 6*d.*), by Treves on *Intestinal Obstruction* (Cassell and Co., 21*s.*), by Tubby on *Deformities* (Macmillan and Co., 17*s.* net), by Morris on the *Surgical Diseases of the Kidney and Ureter* (Cassell and Co., two volumes, 42*s.* net), by Waring on *Operative Surgery*, and by Marsh on *Joints* (Cassell and Co., 12*s.* 6*d.*) should also be read.

RECENT MEDICAL LITERATURE.

During the past student's year several works have appeared which have been highly reviewed in our columns but which cannot be called essential to the library of the student. A certain proportion of these text-books have been, and will be, read by very many students and if they are kept up to date where necessary will very possibly take the place in popularity of those now occupied by other works. A text-book in these days of medical progress requires almost annual revision, explanations once necessary become no longer so, new discoveries entail large additions, doubt is thrown upon accepted theories, importance is given in the medical curriculum to subjects which had previously been barely noticed, and so on. From any or all of these reasons a book that is to appeal to students from year to year must be revised almost annually. It follows from this that text-books which we now recommend as essential—as far as any one text-book can be essential to the student's education may easily drop behind and its place be taken by another book more carefully brought up to date and more directly written to suit the immediate exigencies of the Examination Board.

No new surgical text-book of first class importance has been produced, but a new addition has appeared of ROSE and CARLESS's work and also of JACOBSON's *Operative Surgery*. SAVILL's *Clinical Medicine*, to which we have already referred, is written on a distinctly original plan and might be acceptable to students to whom its purely clinical aim should prove useful. Only the first volume is yet out. Two valuable books upon the diseases of childhood have appeared, both American in origin—viz., KOPLIK's *Diseases of Infancy and Childhood* (Kimpton, 21s.) and HOLT's *Diseases of Infancy and Childhood* (Kimpton, 25s.). Dr. Emmett Holt's work is a second edition, a revision of a thoroughly valuable book of reference brought up to date. Dr. Henry Koplik's text book is quite new and may become popular. It is made up of plain unvarnished descriptions of the ordinary complaints met with in practice and contains many sound hints on treatment supplied out of personal experience. A third edition of Dr. JACOBI's popular *Therapeutics of Infancy and Childhood* (J. B. Lippincott, 18s.) has also appeared.

Tropical Diseases have naturally received much attention during the year from those able to write authoritatively about them. *The Diseases of Warm Countries: a Handbook for Medical Men*, is the second edition of a work by Dr. B. SCHEUBE, State Physician and Sanitary Adviser, Greiz, late Professor at the Medical School in Kioto (Japan). It has been translated from the German by Miss PAULINE FALCKE and contains addenda on Yellow Fever by Mr. JAMES CANTLIE and on Malaria by Dr. C. W. DANIELS. Mr. CANTLIE is the editor and he has obtained many additional original coloured maps and charts from the *Journal of Tropical Medicine* (John Bale, Sons, and Danielsson, Limited, 30s.). This is a full and, so far as is possible considering the many fresh additions that are being constantly made to our knowledge, a very complete treatise on tropical diseases. MANSON's *Tropical Diseases: A Manual of the Diseases of Warm Climates* (Cassell and Co., Limited, 10s. 6d.) also makes a new appearance. Since the first edition of this valuable work appeared in 1898 several reprints and two new editions have followed in quick succession, their necessity showing the rapid changes which have taken place during the past five years in tropical pathology.

Dr. J. M. H. MACLEOD has written a *Practical Handbook of the Pathology of the Skin: an Introduction to the Histology, Pathology, and Bacteriology of the Skin, with Special Reference to Technique* (H. K. Lewis, 15s. net), which should assist students of dermatology in carrying out the histological and bacteriological examination of the skin, for it gives a very full account of the processes employed in the investigation of the skin both in health and in disease.

THE BRITISH MEDICAL MAN ABROAD.

THE conditions of medical practice have much altered in this country of late. Professional incomes in many places have been lowered to vanishing point by the unfair tactics of so called medical aid societies, and the position of servant to which some of these associations would reduce their medical officer is one that liberally educated gentlemen do not welcome with enthusiasm. At the same time the expenses of living have gone up for medical men as they have for all the middle and upper middle classes of the country, while more money is required to secure the necessary medical degrees and diplomas owing to the longer curriculum and the more expensive equipment. These facts account, though only partially, for the increased number of medical men who having obtained British medical qualifications desire to settle abroad. Other factors at work are the spirit of adventure, the feeling that in a new country there is more elbow room and more chances of getting out of the ruck, and the increased facilities of transport. Newspapers and books galore nowadays make us familiar with life in other lands, while trains and steamers will take us all over the world in a short time and at a comparatively small expense. For this reason or that the number of medical men who make inquiry from us as to their legal and professional position in a foreign country grows yearly larger, and in the following columns we make an attempt to give the information that is usually sought.

It will be seen that speaking generally our Colonies make it easy for medical men from home to practise there, but the same is not the case on the continent where there is an obvious tendency towards protection. But in the Colonies there are not many openings for practice except for those who are willing to "rough" it and work hard. In Canada there are outlying districts of British Columbia where a good start might, perhaps, be obtained, but it must be remembered that Canada possesses advanced medical schools and is a sparsely populated country as yet. In Australia the prospect for the British practitioner is not greater than that which faces him in Great Britain. The medical profession is, in fact, everywhere overcrowded, and many practitioners who have gone out from the mother country have had to leave the Colonies or have been very hard pushed to make both ends meet. The graduates of the Colonial Universities every year more than meet the usual vacancies and the local men as a rule get on better than strangers, having friends to talk of them and help them to official positions. It used to be generally believed that, even where there was a large supply of general practitioners in the big colonial towns there would still be good openings for men who have specialised in such branches of practice as the treatment of eye and ear diseases. This is partially true. There are openings of which good men can take advantage. But as a rule the openings in the Colonies for newcomers are in country districts where the medical man, besides being proficient in every branch of the profession, must be ready to lead a hard life. It is desirable that every colonial practitioner intending to start in a country district should be of good physique and not only able to ride but able to take care of his horses.

There are, of course, certain colonial appointments made in this country particulars of which will occasionally be found in our columns. In various districts of South Africa there are appointments as district surgeons and railway surgeons made by the Colonial Office. Medical appointments of this description are from time to time filled up in the West Indies and the West African colonies. Candidates for these posts must be between the ages of 23 and 30 and be properly registered. They should apply to the assistant private secretary at the Colonial Office for information, and their chances of success will be much increased by having passed through one of the schools of tropical medicine. The duties of colonial medical officers involve medical charge of a district, including as a rule the charge of a hospital and a lunatic asylum. The medical officers also supervise the sanitation of their districts and as a rule give gratuitous attendance to all Government officials.

The United States of America form a rich and well-populated country to which, as speaking our language, it is natural for the British medical man to desire to go. The regulations for practice in the various States differ much, but it will be found that wherever the social conditions are pleasant and the opportunities for emoluments good there will be plenty of competition. There are an enormous number of medical men in the United States, the proportion of population to medical men in some of the thickly populated centres being not more than 500 to 1. The British medical man contemplating starting in medical practice in the United States will be prudent to make full inquiry before deciding on the locality, and his chance of success will be enormously increased by his having some good introductions.

FRANCE.

No one—native or foreign—can practise on French territory unless he be provided with the degree of M.D. of a French faculty. Five examinations have to be passed, and in addition a thesis written and "sustained" (defended). In the class attendance and in the professional examinations no allowance or concession is made to foreigners in respect of any medical classes which they may have attended or any qualifications which they may have obtained in any other country. Foreigners who intend to practise on French territory must before commencing their medical studies take the certificate in general education known as the "*diplôme de Bachelier de l'Université.*" Foreigners may graduate as M.D. at a French university without this "diplôme," but in that case they cannot practise in France. The majority of the graduates of this class are Roumanians, Servians, and residents in South America.

As regards the time necessary for the passing of these examinations qualifying for the M.D. degree, the 16 "inscriptions" are given *en bloc* to such qualified foreigner, who may consequently pass his examinations as rapidly as is convenient to himself. Nearly all the examinations are *vivâ-voce* in French only. A British practitioner desirous of qualifying in France must address an application to that effect to the Minister of Public Instruction, and at the same time forward to that Minister a translation into French (by a sworn translator—*traducteur juré*) of his certificate of birth and diplomas, duly viséd by the British consul. Provided the British practitioner be not obtrusively combative and insular in his ideas his social position depends entirely on himself.

ITALY.

Some years ago the British and American consuls at the great centres of Italian population and commerce combined to form an estimate of the money brought annually into the kingdom and spent within its borders by the English-speaking world. That estimate, an approximate one necessarily, which they carefully checked by every qualifying consideration conceivable, amounted to £20,000,000 sterling, about one-third of Italy's whole revenue at that time. This is a fact of great importance from whatever side it is contemplated. For us, as medical journalists, representing the interests of the profession, it has peculiar significance, first as implying a necessarily large and continuous demand for English-speaking practitioners, next as also implying, on the part of Italy, and in her own self-interest, a sincere wish to welcome such practitioners. The British medical men and their American *confrères* form a prominent reason for Italy continuing to attract that portion of the travelling public from which she derives so much of her annual revenue. Taking the latter of these considerations first, we may state at once that every English-speaking practitioner is free to exercise his calling in any of her cities or health resorts without let or hindrance. The restrictions ruling in Switzerland and in France against his practising do not exist in the Italian kingdom. His qualification, certified by ability to produce his diploma or to point to his enrolment on the Medical Register, is quite sufficient. He has, therefore, (*a*) no examination to pass; (*b*) no fees to pay; (*c*) no Government forms to comply with; and (*d*) requires no previous residence in the country as a "condition precedent" to practice. On the other hand, in a country so financially hard-pressed as Italy and compelled to impose taxes in every direction possible, the English-speaking practitioner has to pay the heavy income-tax ("ricchezza mobile" it is called) of nearly 13½ per cent., besides being liable to the comparatively mild "tassa di famiglia" (tax on domestic servants, &c.), levied on foreign and native residents alike. As to the career Italy offers to the English-speaking practitioner, it is in some respects better, in other respects worse, than it was some years ago. It is better inasmuch as Italian medicine has greatly improved of late years, and the foreign practitioner, particularly in those cities which are the seat of medical schools, is not in danger, as he used to be, of getting out of touch with the advance of the profession. Many years ago the late Dr. Aitken of Rome, in an interesting *communiqué*, warned his English-speaking brethren of the state of professional, particularly clinical, exile to which he condemned himself by residence in Italy. Now that drawback no longer exists. Indeed, the British medical man may keep himself *au courant* with the latest accessions to medical doctrine as conveniently in the Italian as in any other kingdom. Graduation at one or other of the many Italian schools gives him the *entrée* to the medical societies, the congresses (provincial and national), the hospitals, the class-rooms open to the native practitioners, while entitling him to the reduced railway and steamboat fares conceded on occasion to all duly qualified Italians. Indeed, he is generally welcome to all these on the ground of professional *fratellanza* (brotherhood); but the graduation above indicated gives him the right to what he would otherwise owe merely to courtesy. On the other hand, the career is less favourable than formerly on account of the larger number of English-speaking competitors it now attracts. Rome, Florence, even Naples and Venice (as a reference to a medical directory will show), are supplied with English-speaking practitioners quite up to, perhaps beyond, their capacity to maintain them profitably. Their harvest (generally limited to the three or four months of the "season") entails immense, almost excessive, activity—compensating the comparative idleness of the months before it and after it. In that period, such is the competition, we no longer hear of the large incomes earned 15 or 20 years ago; but still a practitioner in good practice in Rome and Florence particularly can make an income well into the "four figures" and afterwards supplement it materially at one or other of the resorts open to him on his way back to the British Isles. One word more. There are Italian cities or resorts other than those indicated where a well-qualified practitioner of winning manners and good social introductions can still find or create a *clientèle*. It must, however, be remembered by anyone meditating the attempt that he should be possessed of capital enough to admit of his waiting a year or two, and that his possible income at any of the smaller health or pleasure resorts will necessarily be a limited one.

GERMANY.

Foreign diplomas are not legally recognised in Germany as entitling their holders to practise medicine, so that British medical men desiring to settle in that country have to attend all the classes and pass all the examinations. A young German before commencing the study of medicine must pass an *Abiturienten-Examen.* That of a gymnasium requires a knowledge of French, Latin, Greek, mathematics, history, and theology. Or the examination of a *Real-Gymnasium* or an *Oberrealschule* may be passed. In the latter event more stress is laid on modern languages, mathematics, and natural history, and English is required instead of Greek. Foreigners have, as a rule, to pass this examination, but if they have already passed a similar one in their own country, they may be exempted from it by a special order to be obtained from the Minister of Public Instruction for each individual case. Medicine can only be studied at a university; the curriculum lasts five years after the second of which the examination called the *Tentamen Physicum* must be passed; it includes anatomy, physiology, chemistry, physics, and natural history. After the end of the fifth year the student presents himself for "State Examination," which is practical as well as theoretical, and includes medicine, surgery, obstetrics, gynæcology, pathology, materia medica, and hygiene. If the medical man wishes to have the title of "doctor" he has to pass another examination, which is little more than a formality, but the degree of doctor without the state examination does not confer the right to practise. The law does not allow qualified British practitioners any exceptional facilities in passing the examinations; the time of study may possibly be made a little less than five years for those who have already studied abroad, but a special order, very difficult to obtain, is always required for this purpose. A thorough knowledge of German is essential. The fees for lectures are at least £130, and the examination fees about £12. The fees for the degree of M.D. vary from £10 to £20, being highest at Berlin University, which is the degree that is most popular with alien medical men. There is, however, no prohibition against holders of British diplomas practising in Germany, provided they do not make use of any professional titles resembling those of qualified German medical men. Medical men practising in this way must, however, understand that the law regards them as unqualified, and that they have none of the rights or privileges of the medical profession.

AUSTRIA—HUNGARY.

In order to legally practise in Austria it is necessary to become a naturalised subject, which, we believe, necessitates ten years residence in the country. The ordinary five years' curriculum of an Austrian university must be attended, and if this has been done and the tests have been successfully passed it is unlikely that the naturalisation would be delayed.

Requests for admission to practise in Hungary must be addressed to the Minister of Education who decides upon the conditions of admission after consultation with the Medical Faculty of the University of Budapest. Usually the applicant has to pass three medical examinations, for which a total fee of 295 crowns has to be paid, but this fee is reduced to 80 crowns in cases where the foreign applicant is qualified to practise in his own country. The examinations must, however, be passed.

SWITZERLAND

Foreign practitioners must pass the first, third and fourth State Examinations These examinations are held in either French or German In addition to the British five years' curriculum practitioners would probably require one or two years' additional study The examination fees amount to about £9

RUSSIA

The law relating to foreign medical practitioners desirous to practise in Russia is contained in the two following paragraphs of the *Vratchebny Ustav* or medical statute — Section 93 (*a*). No one, whether a Russian subject or a foreigner, who has not a diploma or certificate from a university or from an Army Medical Academy, has the right to follow any branch of medical or veterinary practice in Russia, (*b*) foreign medical practitioners who wish to practise medicine in Russia must, without exception, know the Russian language. Section 94 Of foreign practitioners who shall be invited or who may come to Russia the right to decide which of them shall be permitted to free practice here and under what conditions is in the hands of the Medical Council of the Ministry of the Interior, some shall be permitted only after the usual examinations and consequent granting to them of a learned degree, others more distinguished after an oral examination (*colloquium*) in the Medical Council, lastly, others who have made a name in the scientific world by their writings or unusually successful practice, or who have occupied professorial chairs or other important medical appointments in other countries, may be permitted to practise without any examination, solely on the decision of the Medical Council, confirmed by the Minister of the Interior, as to the worthiness of such practitioners[1] Previous residence in the country before practice would not be necessary except in the case of the first group mentioned, who would have to pass through the usual five years' course of a Russian medical curriculum. As to the prospects of a British practitioner in Russia the country and the smaller towns can present no attraction to an English medical man, even if the fees obtainable would support him, which they would not. In the two capitals, Moscow and St Petersburg, the field is wider. Competition is, however, great, fees are as a rule small, and bad debts many The frequency of bad debts results from the unwritten law by which medical men do not send in accounts, but leave the patient to pay what he considers a suitable amount.

TURKEY

Alien practitioners are required to pass a *viva voce* examination in physiology, anatomy, medicine, surgery, and midwifery The questions are as a rule quite fair, the object of the examiners being to ascertain whether the diploma which is presented really belongs to the holder of it The examinations are either in Turkish or French, foreigners, however, are allowed to take an interpreter with them from their Consulates The candidate submits his name to the Medical Council at the Imperial School of Medicine, Stamboul, and the day he is to appear for examination is then announced to him The Medical Council appoints a committee of examiners, who decide his fate The entrance fee is T£2 (= £1 16*s* sterling) Successful candidates have to pay a further amount of T£5 (= £4 10*s* sterling) and receive certificates authorising them to practise medicine and surgery throughout the Turkish empire There are no Government forms to comply with, and residence in the country before commencing practice is not compulsory Our information is to the effect that British practitioners have always been successful in Turkey

PORTUGAL

Holders of foreign diplomas must apply for examination at the Universities of Lisbon, Coimbra, or Oporto The cost of the examination including the diploma is about £60

SPAIN.

To practise in Spain or her colonies it is necessary for the holder of British qualifications to send his diplomas to the University of Madrid After inquiries as to identity a diploma will be sent to the applicant who can then legally practise on the same conditions as a Spaniard—namely, the payment of certain duties

EGYPT

Duly qualified British practitioners have no examinations to pass and no fees to pay except a nominal sum for registration They must, however, exhibit their various diplomas to the Director General of the Sanitary Department in Cairo, and obtain a certificate of good character from the British consul A knowledge of French or Italian and Arabic would be essential to any newcomer, as the tourist season only lasts from November to April Our information is to the effect that there are no vacancies for additional English practitioners in Cairo, and that the field is at present already well occupied at Alexandria, Port Said, Suez, Assiout, Luxor, Assouan, Helwân, and the Pyramids

JAPAN

Application must be made to the Home Office, Tokio, and diplomas must be submitted for verification A licence is granted, if the applicant's request is favourably received, on the payment of three yen (about 6*s* 2*d*).

CANADA.

The Canada Medical Act, 1902, authorises the creation of "The Medical Council of Canada," with power to establish a qualification in medicine entitling holders thereof to practise in all the provinces of Canada, but no regulations have as yet been issued As a general rule, the possession of British diplomas and degrees entitles the holders to practise in Canada after having obtained a licence from the provincial medical boards, paid certain fees, and registered their qualifications

Prince Edward Island.—No one can practise medicine, surgery, or midwifery in Prince Edward Island unless registered or licensed by the Council of the Medical Society of Prince Edward Island The Council admits upon the register any person who is duly registered by the General Medical Council of Great Britain

New Brunswick.—Practitioners in New Brunswick must be registered by the Medical Council of the province A candidate for registration (1) must pass an examination in English, arithmetic, algebra, geometry, Latin, elementary mechanics, history, geography, and two of the following languages, Greek, French, and German, unless he has already matriculated at some college in the United Kingdom, Canada, United States of America, or Europe, or holds a first class teacher's licence from the Board of Education of New Brunswick, (2) he must afterwards have studied for four years and attended some university or college or school of medicine for four sessions of not less than six months each and have attended lectures on anatomy, pharmacy, &c, (3) he must have attended the general practice of a hospital for 12 months; (4) he must have obtained a degree in the above subjects from a university, college, or school requiring such four years' course of study or must have passed an examination in them before the examiners in New Brunswick, and (5) he must be over 21 years of age A fee of $10 is required and medical practitioners are liable to an annual fee of from $1 to $2.

Nova Scotia.—Registration and a licence from the Provincial Medical Board are required, which admits upon payment of the registration fee all persons who are duly registered by the General Medical Council of Great Britain

Quebec.—Practitioners must be licensed and registered by the Provincial Board who may license without examination holders of medical diplomas from British universities or colleges

Ontario.—Registration by the Council of the College of Physicians and Surgeons of Ontario is necessary and it is optional for the Council to admit to registration all persons who are duly authorised to practise medicine, surgery and midwifery in the United Kingdom and Ireland upon terms which the Council may deem expedient

Manitoba.—Registration by the Council of the College of Physicians and Surgeons of Manitoba is necessary and applicants for registration must be members of an incorporated medical body in Canada giving similar privileges to persons incorporated in Manitoba. Application should be made to the Council by British medical men desiring to practise in the province Licences to practise are issued to women upon the same terms as men

North-West Territories.—Any person possessing a diploma from any college in Great Britain or Ireland is entitled to practise medicine and surgery, on production of the diploma and of proof of identity, after registration by the Medical

---

[1] This Section dates from 1836, it was amended in 1842, 1845, and 1867.

SESSION 1903-1904.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

Registration of Medical Students.—The following are the General Medical Council's Regulations in reference to the registration of students in medicine:—

Every medical student shall be registered in the manner prescribed by the General Medical Council. The registration of medical students shall be placed under the charge of the branch registrars. Every person desirous of being registered as a medical student shall apply to the branch registrar of the division of the United Kingdom in which he is residing; and shall produce or forward to the branch registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years and has commenced medical study. The branch registrar shall enter the applicant's name and other particulars in the Students' Register, and shall give him a certificate of such registration. Each of the branch registrars shall supply to the several qualifying bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. The commencement of the course of professional study recognised by any of the qualifying bodies shall not be reckoned as dating earlier than fifteen days before the date of registration. In addition to the universities and schools of medicine there are several scientific institutions in 13 English towns and in Dublin where medical study may be commenced. In London these institutions are the Birkbeck Institute, the East London Technical College, the Central Technical College, and Westfield College. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

The Preliminary Examination in General Education, required to be passed previously to registration as a medical student, shall be as follows:—

1. English language, including grammar and composition. 2. Latin, including grammar, translation from unprescribed Latin books, and translation of English passages into Latin. 3. Mathematics, comprising (*a*) arithmetic, (*b*) algebra, including easy quadratic equations, (*c*) geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions. 4. One of the following subjects: (*a*) Greek, (*b*) a modern language.

In many cases the Council will not accept certificates of pass in Preliminary Examination in General Education unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine have been *passed at the same time.*

A degree in Arts of any university of the United Kingdom or of the colonies or a certificate of having passed the final examination for a degree in Arts or Science of any university in the United Kingdom shall be considered a sufficient testimonial of proficiency.

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student.

I.—UNIVERSITIES IN THE UNITED KINGDOM.

University of Oxford.—Junior Local Examinations. Senior Local Examinations. Responsions. Moderations.

University of Cambridge.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Previous Examination. General Examination.

University of Durham—Examination for Certificate of Proficiency. Senior Local Examinations.

University of London.—Matriculation Examination.

Victoria University.[1]—Preliminary Examination.

University of Birmingham.—Matriculation Examination.

University of Wales.—Matriculation Examination.

University of Edinburgh.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science for Medicine and Surgery.

University of Aberdeen.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of Glasgow.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of St. Andrews.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery. Final Examination for a degree in Arts or Science or for the diploma of L.L.A.

University of Dublin.—Public Entrance Examination. Examination for the first, second, third, or fourth year in Arts.

Royal University of Ireland.—Matriculation Examination.

Oxford and Cambridge Schools Examination Board.—Lower certificate (to include all the required subjects at one time). Higher certificate (to include the required subjects).

II.—MEDICAL LICENSING BODIES.

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary Examination.

III.—EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

College of Preceptors.—Examination for a First Class Certificate; Preliminary Examination for Medical Students.

Intermediate Education Board of Ireland.—Middle Grade Examination; Senior Grade Examination.

Educational Institute of Scotland.—Preliminary Medical Examination.

Scottish Education Department.—Leaving Certificates in Lower and Higher Grades and in Honours.

Central Welsh Board.—Senior Certificate Examination.

IV.—INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

The Certificates from Indian, Colonial, and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it, must include all the subjects required by the General Medical Council, and must state that all the subjects of Examination have been passed in at one time; copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classical Oriental Language may be accepted instead of an Examination in Latin.

Professional Education.—The course of professional study after registration shall occupy at least five years. The Final examination in Medicine, Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study.

H. E. Allen, LL.B., Registrar of the General Council and of the Branch Council for England, 299, Oxford-street, London, W.—James Robertson, Registrar of the Branch Council for Scotland, 48, George-square, Edinburgh.—Richard J. E. Roe, Registrar of the Branch Council for Ireland, 35, Dawson-street, Dublin.

POWERS AND DUTIES OF THE GENERAL MEDICAL COUNCIL.

As there is apparently, even among members of the medical profession, a great amount of ignorance as to the powers and duties of the General Medical Council, we think it well to lay clearly before our readers what the General Medical Council is and also what it is not.

Many of the false ideas on the subject are due to the use of the shortened title, "General Medical Council." The full title is, "General Council of Medical Education and Registration of the United Kingdom." This title is in accordance with the Medical Act of 1858, by which the General Medical Council was established to enable persons requiring medical aid to distinguish qualified from unqualified practitioners. Registrars were to be appointed by the General Council and by the Branch Councils to keep registers of qualified persons. Registrars were bound by Section XIV. of the Act to keep their registers correctly, a duty which, mainly owing to the apathy of members of the medical profession, has not been adequately performed.

It will thus be seen that the General Medical Council is primarily a body of gentlemen charged with looking after the education and registration of medical practitioners. The sole penalty it can inflict is to strike a man's name off the Medical Register. It is as well here to put down the advantages, such as they are, of being duly registered. A duly registered practitioner may sue in the courts of law for the recovery of charges for medical attendance or advice, or surgical attendance or advice, or for the supply of medicine, or for the performance of any operation—provided that he is not debarred from suing by being a Fellow or a Member of any corporation which objects to its Fellows or Members so suing. He may be exempted, if he so desire, from serving on juries, from serving sundry corporate and parochial offices, and from serving in the Militia. Only a registered practitioner can hold appointments in the navy, army, and sundry Poor-law and other institutions. Only a registered person can sign a valid medical certificate. Removal of the name from the Register debars a man from all the above-mentioned privileges.

---

[1] The University of Liverpool has now been granted a charter.

Let us now consider what the General Medical Council is not. Unfavourable comparisons are often drawn between *the General Medical Council and the Incorporated Law* Society. The two bodies are not in the very least upon the same footing. The Incorporated Law Society is a society composed of such practitioners as apply for membership and are elected by the Council. It is by statute the keeper of the roll of solicitors who have to pay a fee each year to obtain renewal of certificate to practise, which certificate has then to be stamped by the Inland Revenue authorities on payment of the annual duty. The society is also intrusted with the duty of inquiring into professional misconduct and reports thereon to the High Court which may or may not agree with the report. The offender is struck off the rolls by the court, not by the society. Only a minority of solicitors are members of the society. The society has a charter and is governed by a council. The somewhat analogous body in the medical profession is the British Medical Association, which, however, has none of the legal powers possessed by the Incorporated Law Society.

The General Medical Council is in no way a medical protection society or a medical defence union. It is not a professional union or a guild charged with looking after the interests of the medical profession after the manner of the old trades guilds, except in so far as it is concerned with the education of medical students. It has no powers over any member of the medical profession except to remove the name of any offending member from the roll of the profession or Medical Register. It cannot take away any degree, or diploma, or licence, and even if a practitioner is struck off the Medical Register there is nothing in the existing state of the law to prevent such practitioner continuing to practise, provided that he does not use any name or title implying that he is registered. Practitioners may be removed from the Medical Register (1) if convicted of felony or misdemeanour in England or in Ireland, or in Scotland of any crime or offence, and (2) on being adjudged by the General Medical Council to have been guilty of "infamous conduct in a professional respect." The words "infamous conduct" are certainly unfortunate, for they cover such a comparatively trivial offence as advertising and *such a truly infamous offence as that* committed by a medical man who committed adultery with a married woman whom he was attending professionally.

The General Medical Council is, we repeat, primarily a body charged with looking after medical education; it is but little concerned with medical politics and, as a matter of fact, the time of the Council is almost entirely taken up with considering educational and registration matters, the latter including the penal cases of removal from the Register. The Council at present consists of 31 members, of whom, as will be seen by the annexed list, all but 10 are representatives of some corporate body. Five members are chosen by the Crown on the advice of the Privy Council, and five others are elected by the members of the medical profession as Direct Representatives.

President of the General Council.—Sir William Turner, K C B. Members of the General Council.—Dr. Norman Moore, chosen by the Royal College of Physicians of London; Mr. Thomas Bryant, Royal College of Surgeons of England; Sir Hugh Reeve Beevor, Bart., Apothecaries' Society of London; Dr. Joseph Frank Payne, University of Oxford; Dr. Donald MacAlister, University of Cambridge; Sir George Hare Philipson, University of Durham; Dr. Philip Henry Pye-Smith, University of London; Dr. Alfred Harry Young, Victoria University; and Dr. Bertram C. A. Windle, University of Birmingham. Sir John Batty Tuke, M.P., chosen by the Royal College of Physicians of Edinburgh; Sir Patrick Heron Watson, Royal College of Surgeons of Edinburgh; Dr. John Lindsay Steven, Faculty of Physicians and Surgeons of Glasgow; Sir William Turner, University of Edinburgh; Dr. Thomas McCall Anderson, University of Glasgow; Dr. David White Finlay, University of Aberdeen; and Dr. John Yule Mackay, University of St. Andrews. Dr. Lombe Atthill chosen by the Royal College of Physicians of Ireland: Sir Charles Bent Ball, Royal College of Surgeons in Ireland; Mr. Charles R. C. Tichborne, Apothecaries' Hall of Ireland; Dr. Edward Hallaran Bennett, University of Dublin; and Sir Christopher John Nixon, Royal University of Ireland. Nominated by His Majesty, with the advice of his Privy Council: Mr. Charles Sissmore Tomes, Mr. William Henry Power, C.B., Sir John Williams, Bart., Dr. David Caldwell McVail, and Dr. James Little. Elected *as Direct Representatives: Mr. George Brown, Sir Victor* Alexander Haden Horsley, Mr. George Jackson, Dr. William Bruce, and Sir William Thomson, C.B. Treasurers of the General Council: Mr. Thomas Bryant and Dr. Philip Henry Pye-Smith.

REGULATIONS
OF THE
MEDICAL EXAMINING BODIES IN THE UNITED KINGDOM.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, B.M. and D.M., and two degrees in Surgery, B.Ch. and M.Ch.

The B.M. and B.Ch. degrees are granted to those members of the University who have passed the Second Examination. Graduates in Arts (B.A. or M.A.) are alone eligible for these two degrees. In order to obtain the degrees of B M. and B.Ch. the following examinations must be passed:—1 Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology and Botany. 2. Professional. (*a*) First Examination: Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy, and Materia Medica with Pharmacy. (*b*) Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene. The approximate dates of the examinations are as follows:—Preliminaries—Mechanics, Physics and Chemistry, December and June; Animal Morphology, December and March; Botany, March and June; Professional (First and Second B.M.) June and December.

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations *have been completed*. The subjects of this examination may be presented separately or in any combination or in any order, provided Anatomy and Physiology be passed together.

The Second Examination may be passed after the completion of the first, but Pathology may be taken before, with, or after the remaining subjects Before admission to the Second Examination candidates must present Certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours, and of proficiency in the practice of Vaccination.

The degree of D.M. is granted to Bachelors of Medicine of the University—(1) who took the degree of B.M. previously to the end of Trinity Term, 1886, provided they have spent three years in the practice of Medicine after taking that degree, and have composed a dissertation on some medical subject approved by the Regius Professor of Medicine, before whom it must be read in public; (2) who took the degree of B.M. subsequently to the end of Trinity Term, 1886, provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M. whose subject is dealt with. A book published within two years of the candidate's application for the degree may be substituted for a dissertation. The Regius Professor may direct the dissertation to be read in public. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty-seventh term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed an examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second B.M. Examination.

Scholarships, &c.—Scholarships in some branch of Natural Science (Chemistry, Physics, Biology) of the average value of £80 per annum, tenable for four years and renewable under certain conditions for a fifth year, as well as Exhibitions of a less annual value, are awarded after competitive examination every year by some of the Colleges. Notices of vacancy, &c., are published in the *University Gazette*. In February there is competed for annually by those who, having obtained a first-class in any school (Moderations or final), or a Scholarship or Prize open to general competition in the University, have passed all the examinations for the degree of B.M. one Radcliffe Travelling Fellowship. It is tenable for three years and is of the annual value of £200. The examination is partly scientific, partly medical. The holder must travel abroad for the purpose of medical study. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject including Physiology or Pathology.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1902, which contain the official schedules of the several subjects of examination in both Arts and Medicine; from the Student's Handbook to the University (all of which are published by the Clarendon Press); from the Regius Professor of Medicine; and from the Professors in the several departments of medical science.

The Lecturers for the various subjects are as follows:—Regius Professor of Medicine: Sir J. S. Burdon-Sanderson, Bt., D.M. Pathological Histology and Practical Bacteriology: The Reader in Pathology, J. Ritchie, D.M. Edin. Professor of Human Anatomy: A. Thomson, M.A. Waynflete Professor of Physiology: F. Gotch, M.A., D.Sc. University Lecturer on Physiology: J. S. Haldane, M.A. Practical Physiology and Histology: G. Mann, D.M. Edin. Physiological Chemistry: Walter Ramsden, M.D. Lichfield Lecturer in Clinical Medicine: W. T. Brooks, M.A. Lichfield Lecturer in Clinical Surgery: G. W. S. Farmer, M.Ch. Edin. Organic Chemistry in Relation to Medicine, &c., followed by Practical Work: W. W. Fisher, M.A. (Aldrichian Demonstrator), and J. E. Marsh, M.A. Lecturer in Materia Medica and Pharmacology: W. J. Smith Jerome, B.M. Lond. Linacre Professor of Comparative Anatomy: W. F. R. Weldon, M.A., D Sc. Lees Reader in Anatomy: J. B. Thompson, M.A. Elementary Animal Morphology (Practical): the Aldrichian Demonstrator, E Goodrich, M.A., and assistants. Sherardian Professor of Botany: S. H. Vines, M.A. Waynflete Professor of Chemistry: W. Odling, M.A. Lees Reader in Chemistry: G Brereton Baker, M.A. Laboratory Instruction: W. W. Fisher, M.A., J. Watts, M.A., and J. E. Marsh, M.A. Wykeham Professor of Physics: J. S. E. Townsend, M.A. Professor of Experimental Philosophy: R. B. Clifton, M.A. Instruction in Practical Physics: R. B. Clifton, M.A., J. Walker, M.A., P. I. Watkin, M.A., and W. W. Taylor, M.A. Elementary Heat and Light: Lees Reader in Physics, R. E. Baynes, M.A. Elementary Mechanics: F. J. Jervis-Smith, M.A.

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms (three years) by residence in the University. He must pass the Previous Examination in Classics, Mathematics, &c., which may, and should if possible, be done before coming into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board or the Cambridge Senior Local Examinations. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts, either continuing mathematical and classical study and passing the ordinary examinations for B.A., or going out in one of the Honour Triposes. The Natural Sciences Tripos is the most appropriate, as some of the subjects are practically the same as those for the first and second M.B. examinations.

For the degree of *Bachelor of Medicine (M.B.)* five years of medical study are required. This time may be spent in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed, say, the examination for the Natural Sciences Tripos and the first and second examinations for M.B. Cambridge being now a complete School of Medicine, all the requisite lectures and hospital practice may be attended here, and many students remain to attend lectures and hospital practice until they have passed the first part of the third examination for M.B. The supply of subjects for Dissection is abundant and the laboratories for Pathology, Bacteriology, and Pharmacology are well equipped. Addenbrooke's Hospital provides for the necessary clinical training.

There are three examinations for M.B. The *first* includes Chemistry and other branches of Physics, and Elementary Biology. These parts may be taken together or separately. The *second* includes Human Anatomy and Physiology. The *third* is divided into two parts—viz., (1) Pharmacology and General Pathology; (2) Principles and Practice of Surgery, Midwifery and Diseases peculiar to Women, Principles and Practice of Physic. The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting-room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

As Operative and Clinical Surgery now form parts of the third M.B. examination candidates who have passed both parts of that examination are admitted to the registrable degree of *Bachelor of Surgery (B.C.)* without separate examination and without keeping an Act.

The degree of *Doctor of Medicine* may be taken three years after that of M.B. or four years after that of M.A. An Act has to be kept, consisting of an original Thesis sustained in the Public Schools, with *vivâ-voce* examination; and an extempore Essay has to be written on some subject relating to Physiology, Pathology, the Practice of Medicine, or State Medicine.

For the degree of *Master of Surgery (M.C.)* the candidate must have passed all the examinations for B C., or if he is an M.A. have obtained some other registrable qualification in surgery. He is required either (1) to pass an examination in Surgical Anatomy and Surgical Operations, Pathology, and the Principles and Practice of Surgery, and to write an extempore Essay on a Surgical Subject; or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery. Before he can be admitted to the examination two years at least must have elapsed from the time when he completed all required for the degree of B.C. Before submitting original contributions he must have been qualified at least three years.

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry, Physics, Biology, Pharmacology, and General Pathology may be obtained upon sending a stamped directed envelope to the Registrary, Cambridge.

UNIVERSITY OF LONDON.

The Matriculation Examination.—The examinations take place three times in each year—namely, on Sept. 15th (or if this is a Sunday then on Sept. 16th), on the second Monday in January, and on the second Monday in June (or July, as may be hereafter determined). The examinations in January and June (or July), but not that in September, may be held not only at the University of London, but also, under special arrangement, in other parts of the United Kingdom or in the colonies. Every candidate must, on or before Sept. 1st for the September examination, on or before April 25th for the June (or July) examination, and on or before Nov. 25th for the January examination, apply by postcard to the Principal for a form of entry, which must be returned on or before Sept. 5th, May 1st, or Dec. 1st respectively, accompanied in the same cover by a certificate showing that the candidate has completed his sixteenth year, and by his fee for the examination. A certificate from the Registrar-General in London or from the superintendent registrar of the district, or a certified copy of the baptismal register, is required in every case in which it can possibly be obtained. In other cases a declaration of the candidate's age, made before a magistrate by his parent or guardian, or by the candidate if of full age, will be accepted. As candidates cannot be admitted after the list is closed, any candidate who may not have received a *form of entry within a week after applying for it should* communicate immediately with the Principal, stating the exact date of his application and the place where it was posted. Every candidate must pay a fee of £2, and if he withdraws his name, or fails to present himself at the examination, or fails to pass it, the fee shall not be returned to him, but a concession is made to candidates who entered for a Matriculation examination in or before January, 1902. Candidates must [illegible] the [illegible] 1. [illegible] ish [illegible] Mathematics—Arith- [illegible] ations and graphs of simple functions), and the subjects of Euclid (Books I. to IV.). 3. Latin, or Elementary Mechanics, or Elementary Physics (Heat, Light, and Sound), or Elementary Chemistry, or Elementary Botany. 4 and 5. Two of the following subjects, neither of which has been taken under Section 3 (if Latin be not taken, one of the other subjects must be another language from the list): Latin, Greek, French, German, Ancient History, Modern History, Logic, Physical and General [illegible] anical Drawing, Mathe- [illegible] Mechanics, Elementary [illegible] eat, Light, and Sound), Elementary Physics (Electricity and Magnetism), and Botany. Additional subjects, which, however, are not taken at the September examination, are: Arabic, Sanskrit, Spanish, Portuguese, Italian, Hebrew, and Zoology. A pass certificate signed by the Principal is delivered to each successful candidate after the report of the examiners shall have been approved by the Senate.

Provincial Examinations for Matriculation.—These examinations are appointed by the Senate from time to time upon the application of any city, institution, or college desiring to be named as a local centre for one or more examinations, and are carried on simultaneously with the examinations in London under the supervision of sub-examiners also appointed by the Senate. Candidates wishing to be examined at any provincial centre must give notice upon their forms of entry to the Principal of the University, who will then make all necessary arrangements. Besides the University fee, a fee usually varying from £1 to £2 is charged by the local authorities, and must be paid *at the local centre* immediately before the commencement of the several examinations. There are no provincial examinations in September. The answers of the candidates at the provincial examinations are reviewed by the examiners at the same time as the answers of the candidates examined in London, and a list of the candidates who have passed at each provincial examination is published, at the time fixed by the regulations, at the place where such examination has been held.

Preliminary Scientific Examination.—Professional studies pursued before the whole of this examination has been passed will not count towards the four years' course subsequent to passing the Preliminary Scientific Examination required for the M B., B.S degrees. Candidates must have passed the Matriculation examination nine months previously. The examination takes place twice in each year, commencing on the third Monday in January and on the second Monday in July. Every candidate must apply to the External Registrar for a form of entry on or before May 24th for the July examination, or on or before Dec. 15th for the January examination, which must be returned on or before June 1st and Dec. 22nd respectively, accompanied by the candidate's fee of £5 which covers the whole of the examination, whether taken altogether or in sections. The subjects of the Preliminary Scientific Examination are divided into two sections: (1) Chemistry and Physics, and (2) General Biology. Chemistry includes a written examination in Chemistry and a practical examination in Qualitative and Easy Quantitative Analysis. Physics implies a knowledge of mechanics, heat, sound, light, magnetism, and electricity. General Biology *comprises a knowledge of the* elements of zoological (vertebrate or invertebrate) and botanical morphology, physiology, and embryology. Candidates shall be allowed to enter for the whole examination or for either section. Candidates who present themselves for the two sections together shall be credited with either section in which they may have passed, although they may have failed to pass in the other.

Provincial Examinations for the Preliminary Scientific Examination.—The examination may be held not only at the University of London but also under special arrangements *in other parts of* the United Kingdom. Candidates wishing to be examined at provincial centres must give notice upon their forms of entry to the Principal of the University and have to pay an additional fee.

Bachelor of Medicine and Surgery.—Every candidate for the degree of Bachelor of Medicine and Surgery will be required—1. To have passed the Matriculation examination in this University not less than five years previously. 2. To have passed the Preliminary Scientific examination not less than four years previously. 3. To have been engaged in his professional studies during five years subsequently to Matriculation and four years subsequently to passing the Preliminary Scientific examination at one or more of the medical institutions or schools recognised by this University, one year at least of the four being spent in one or more of the recognised institutions or schools in the United Kingdom. 4. To pass two examinations in Medicine.

Intermediate Examination.—The Intermediate examination in Medicine takes place twice in each year, commencing on the third Monday in January and on the first Monday in July. The subjects of the examination are [illegible] d Histology, and Pharmacology, [illegible] No candidate shall be admitted [illegible] he have passed the Preliminary Scientific examination at least two years previously and have produced certificates of having subsequently to having passed the Preliminary Scientific examination been a student during two years at one or more of the medical institutions or schools recognised by this University, and of having attended (1) a course of not less than 100 lectures on Anatomy; (2) a course of Dissections for not less than 12 months; (3) a course of not less than 60 lectures on Physiology; (4) courses of experimental Physiology, Histology, and Physiological Chemistry for not less than three months each; (5) lectures and demonstrations on Pharmacology, Pharmacy, and Materia Medica for not less than three months; and (6) *Practical Pharmacy for not less than two* months. These certificates (as is the case also with all the certificates hereinafter mentioned) must be transmitted to the Registrar at least four weeks before the commencement of the examination. Fee for this examination, £10.

M.B., B.S Examination.—The M.B., B S. examination takes place *twice in each year,* commencing on the last Monday in October and on the first Monday in May. No candidate will be admitted to this examination within two academic years from the date of passing the Intermediate examination. In May, 1904, the M.B. examination will be held for the last time under the old regulations. The M.B., B S. examination under the regulations now described will be held for the first time in October, 1904. Bachelors of medicine of this University who graduated in or before 1903 may obtain the B.S. degree by passing the Surgical part of the M B , B.S. examination. Every candidate must produce certificates of having passed the intermediate examinations and of having subsequently attended courses of instruction in (1) Principles and Practice of Medicine; (2) Clinical Methods and Physical Diagnosis; (3) Insanity; (4) Therapeutics; (5) Vaccination; (6) Principles and Practice of Surgery; (7) Operative Surgery, Surgical Anatomy, Practical Surgery, and the Administration of Anæsthetics; (8) Diseases of the Eye, Ear, and Throat; (9) Midwifery and Diseases of Women; (10) Practical Midwifery, *the conduct of at least 20* Labours, and practice as a Clinical clerk in Gynæcological work; (11) Pathology and Bacteriology; (12) work of the Post-mortem room; (13) Forensic Medicine; and (14) Hygiene. He must also have attended the Medical and Surgical practice of a recognised hospital for two years and a fever hospital for two months. Candidates will be examined in Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, Midwifery, and Diseases of Women. The subjects may be divided into two groups—namely: (1) Medicine, Pathology, Forensic Medicine, and Hygiene; and (2) Surgery, Midwifery, and Diseases of Women. These groups may be taken either separately or together. The fee is £10 for each entry to the whole examination and £5 for examination or re-examination in either group. There will be no separate examination held for Honours but the list of candidates who have passed will be published in two parts—namely, an Honours list and a Pass list.

Doctor of Medicine.—The examination for this degree takes place twice in each year, commencing on the first Monday in December and on the first Monday in July. Candidates must have taken the degrees of M.B., B.S. not less than two years previously, but for those who have taken the M.B., B.S. degrees with Honours or have done some certain original work this period of delay may be reduced to one year. They may present themselves for examination in one of the following branches, namely: (1) Medicine; (2) Pathology; (3) Mental Diseases; (4) Midwifery and Diseases of Women; and (5) State Medicine. Certain conditions have to be fulfilled in each case, varying according to the nature of the branch in question. Any candidate for the degree of M.D. may transmit to the External Registrar, not less than two months before the commencement of the examination, a thesis or published work having definite relation to some special department of Medical Science; and if the thesis be approved by the examiners the candidate may be exempted from the written examination. The fee is £20.

Master in Surgery.—The examination for the degree of Master in Surgery takes place twice in each year and commences on the first Monday in December and on the first Monday in July. Candidates must produce certificates of having taken the degrees of M B and B S. not less than two years previously and of having subsequently held for at least six months a resident or non-resident Surgical hospital appointment. The examination is conducted by means of printed papers and *vivâ-voce* interrogation, and the subjects are Surgery, Surgical Pathology and Anatomy, a Clinical examination, and operations on the dead body. Any candidate for the degree of M.S. may transmit to the External Registrar, not later than two months before the commencement of the examination, a thesis or published work having definite relation to Surgery, and if the thesis be approved by the examiners the candidate may be exempted from the written examination in Surgery. The fee is £20.

UNIVERSITY OF DURHAM.

One Diploma and six degrees are conferred—viz., the Diploma in Public Health and the degrees of Bachelor in Medicine, Bachelor in Surgery, Master in Surgery, Doctor in Medicine, Bachelor in Hygiene, and Doctor in Hygiene. These degrees are open both to Men and Women.

For the degree of *Bachelor in Medicine* (*M.B.*) there are four professional examinations.

The subjects of the First Examination are—Elementary Anatomy and Elementary Biology, Chemistry, and Physics.

The subjects of the Second Examination are—Anatomy, Physiology, Materia, Medica, Therapeutics, Pharmacology, Pharmacy.

The subjects for the Third Examination are—Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.

The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery and Diseases of Women and Children.

N.B.—It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine, Newcastle-upon-Tyne. Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board.

For the degree of *Bachelor in Surgery* (*B.S.*) every candidate must have passed the examination for the degree of Bachelor in Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Regional Anatomy. Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances.

For the degree of *Master in Surgery* (*M.S.*) candidates must not be less than twenty-four years of age and must satisfy the University as to their knowledge of Greek. In case they shall not have passed in this subject at the Preliminary Examination in Arts for the M.B degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.S They must also have obtained the degree of Bachelor in Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor in Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice.

The subjects of examination are:—Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

For the degree of *Doctor in Medicine* (*M.D.*) candidates must be not less than twenty-four years of age and must satisfy the University as to their knowledge of Greek. In case they shall not have passed in this subject at the Preliminary Examination in Arts for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M D. They must also have obtained the degree of Bachelor in Medicine of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor in Medicine in attendance on the practice of a recognised hospital, or in the military or naval services, or in medical and surgical practice. Each candidate must prepare an essay, which must be typewritten, based on original research or observation, on some medical subject selected by himself, and approved of by the Professor of Medicine and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the essay.

The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners. They shall produce certificates of moral character from three registered members of the medical profession, and if they have not passed an examination in Arts previously to the Professional Examination in virtue of which they have been placed on the Register, they shall be required to pass in Classics and Mathematics. Candidates who have passed an examination in Arts previously to being placed on the Register are required to pass an examination in Latin. They will be examined in the Principles and Practice of Medicine, including Psychological Medicine, Hygiene, and Therapeutics, the Principles and Practice of Surgery, Midwifery, and Diseases of Women and Children, Pathology (Medical and Surgical), Anatomy (Medical and Surgical), Medical Jurisprudence, and Toxicology. The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners.

Candidates for any of the above degrees must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-on-Tyne. In the case of the M.D. (essay) examination candidates must send in their essays six weeks before the date of the examination.

VICTORIA UNIVERSITY.

Matriculation, which consists in signing the University Register, must precede entry upon any course of study. Those only can matriculate who are registered students of a College of the University—viz., Owens College Manchester; the Yorkshire College, Leeds; and University College, Liverpool.

Four degrees in Medicine and Surgery are conferred by the Victoria University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

All candidates for degrees in Medicine and Surgery are required to pass an examination called the Preliminary Examination (Faculty of Medicine), or to have passed such other examination as may be recognised by the University for this purpose.[1]

---

[1] The examinations at present recognised are:—1. Graduation in this or some other university of the United Kingdom, provided that Latin has formed part of one of the Degree Examinations. 2 London Matriculation. 3. Higher Certificate of the Oxford and Cambridge Schools Examination Board. (Certificates must show that the candidate has satisfied the Examiners in Latin, Elementary and Additional Mathematics, English or History, and in either Greek, French or German. The Mechanical Division of Natural Philosophy will satisfy the requirements in Mechanics) 4 Senior Oxford Locals (Honours). Certificates must show that the candidate has satisfied the Examiners in Latin Pure Mathematics, English Essay, English History, and in either Greek, French German or Spanish. Applied Mathematics [illegible] E will satisfy the (Section D) or [illegible] Locals (Honours) requirements [illegible] fied the Examiners (Certificates m[illegible] in Latin, Euclid, and Algebra, English Composition, and English

Degrees of Bachelor of Medicine and Bachelor of Surgery —Before admission to the degree of M B or Ch B candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in a College of the University, and one year at least having been passed in a College of the University subsequently to the date of passing the First M B Examination. All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery
iners in the several subjects
the First Examination, the
inal Examination

The First Examination —The subjects of examination are as follows —(1) Chemistry; (2) Elementary Biology; (3) Physics Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above named subjects The Examination is divided into two parts Part 1, Physics and Chemistry, Part 2, Biology; and the candidates may pass in these parts separately.

The Second Examination —The subjects of examination are as follows —A (1) Anatomy, (2) Physiology including Physiological Chemistry and Histology, B. (3) Materia Medica and Pharmacy. Candidates may pass in A and B separately

The Final Examination —The subjects of examination are as follows —(1)
General Pathology a
Medicine and Toxicolc
and Diseases of Won
and Practical (6) M
cluding Mental Diseases and Diseases of Children

Candidates may either present themselves in all the six subjects of examination on the same occasion or may pass the examination in two parts, the first part consisting of *two* or *three* of the subjects (1), (2) and (3), the second part of the remaining subjects

Candidates who fail to satisfy the examiners in the first part must either present themselves again in the subjects as selected or in all the three subjects of the First part or in all the six subjects of examination

Candidates for the first part of the examination must have completed the *fourth winter* of medical study

Candidates for the second part of the examination, or for the whole examination, must have completed the fifth year of medical study

Degree of Doctor of Medicine —Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees Candidates for the degree of Doctor of Medicine are required to present a printed dissertation embodying the results of personal observations or original research, either in some department of medicine or of some science directly relative to medicine No candidate will be admitted to the degree unless his dissertation shall have been recommended by the General Board of Studies to the Council for acceptance Candidates may be examined on any subject connected with their dissertations

Degree of Master of Surgery —Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees The subjects of examination are as follows. (1) Surgical Anatomy; (2) Surgery; (3) Operative Surgery; (4) Clinical Surgery, (5) Ophthalmology, and (6) Pathology and Bacteriology

Communications should be addressed to the Registrar, Victoria University, Manchester

---

inish Applied
l Hydrostatics
Provided that
ns shall include
If Mechanics
n, an approved
andidate passes
discretionary
power to accept other examinations of at least equal standard

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M B, Ch B, M D, Ch M, and also a degree and a diploma in Public Health The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council As a rule the first four of these
the Senate has
r University as
degrees and of
Universities as
exempting from the examinations in Chemistry, Physics, and Comparative Anatomy In the case of such students at least three years must be spent in attendance upon classes at the University The fifth year may be spent at any other school or schools of medicine recognised by the University

Degrees of Bachelor of Medicine and Bachelor of Surgery —The student must have passed either the Matriculation Examination of the University or one of the following examinations For the present the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of medical students, provided always that such examination shall have included the subjects of English, Latin, Mathematics, and any one of the following Greek, French, German, or any other modern foreign language, and that all the subjects have been passed at one examination (*a*) the previous examination of the University of Cambridge, (*b*) responsions of the University of Oxford, (*c*) the Preliminary or Matriculation Examination of any recognised University; (*d*) the (Higher) Certificate of the Oxford and Cambridge Examinations Board, (*e*) the Oxford or Cambridge Junior Local Examinations, with First or Second Class Honours, or with Distinctions in two subjects, which may be either languages or mathematics; (*f*) the Oxford or Cambridge Senior Local Examination; (*g*) the College of Preceptors' Examination for First Class Certificate A Matriculation Examination will be held on Sept 14th, 1903 and succeeding days First Examination – Chemistry and Physics Second Examination —Anatomy, Comparative Anatomy, and Physiology Third Examination —Pathology and Bacteriology Fourth Examination (at the end of the fourth year) —Forensic Medicine, Toxicology, and Public Health Two years' hospital work must have been accomplished Final Examination —Medi-
peutics, Mental
at a general
ourth examina-
er hospital and
lunatic asylum Vaccination instruction must be taken out and courses of Ophthalmology, Medical and Surgical Anatomy and Operative Surgery,

Degrees of Doctor of Medicine and Master of Surgery —Candidates for either of these degrees will be required either (*a*) to present a thesis embodying original observations in some subject embraced in the medical curriculum and approved by a board of medical examiners to whom the thesis will subsequently be submitted, on the report of which board the degree will be awarded or withheld (the candidate may be examined on the subject which he has chosen for his thesis and the examiners may require to see the notes of original observations on which the thesis is based), or (*b*) to pass a general examination (written and practical) in Medicine or Surgery, according to the degree desired, and, in addition to show special proficiency in any one of the following subjects to be chosen by the candidate For the degree of M D (*a*) Infectious Diseases (*b*) Diseases of the Chest (*c*) Diseases of the Abdomen, (*d*) Nervous Diseases, (*e*) Diseases of Children, (*f*) Midwifery, (*g*) Pathology, (*h*) Bacteriology, (*i*) Medical Jurisprudence and Toxicology, (*j*) Public Health, (*k*) Mental Diseases, or (*l*) Diseases of the Skin For the degree of M Ch (*a*) Regional Surgery, (*b*) Gynæcology, (*c*) Ophthalmology, or (*d*) Diseases of the Ear, Nose, and Throat

Degree in Public Health —For the regulations for this degree and for the diploma in the same subject see p 717

Fees —Matriculation, £2, First Examination, £4 Second Examination £4 Third Examination, £2, Fourth Examination, £2, Final Examination, £4

UNIVERSITY OF EDINBURGH

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz, Bachelor of Medicine (M B), Bachelor of Surgery (Ch B), Doctor of Medicine (M D), and Master of Surgery (Ch.M) The degree of

Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

A special University certificate in Diseases of Tropical Climates is also granted to qualified medical practitioners and others specially interested, after approved attendance on the courses of instruction in Tropical Diseases and Practical Bacteriology, including the Micro-organisms of Tropical Diseases.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: Provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin or Greek.

No one is admitted to the degrees of Bachelor of Medicine and Bachelor of Surgery who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months. These courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of 25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, and one of the three following, viz.—Diseases of Children; Diseases of the Larynx, Ear, and Nose; and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have attended, under the superintendence of a registered medical practitioner, twelve cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution, and have conducted personally six or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

Next, with respect to the places and institutions at which the studies of the candidate may be prosecuted, the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz., Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than eight must be taken in the University of Edinburgh or in some other university of the United Kingdom, or in some Foreign or Colonial university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court, or in a college incorporated with, or affiliated to, a university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court.

Women are admitted to graduation in medicine under practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum, the regulations as to places of study contained in the foregoing paragraph do not apply to them. The Medical College for Women, 30, Chambers-street, Edinburgh, has been recognised as a medical school whose courses of instruction qualify for graduation.

Each candidate is examined, both in writing and orally, and clinically where the nature of the subject admits:—First, in Chemistry, Zoology, Botany, and Physics; second, in Anatomy, Physiology, Materia Medica, and Therapeutics; third, in Pathology; and fourth in Surgery, Medicine, Midwifery, Forensic Medicine, and Public Health, and clinically in Medicine and Surgery in a hospital. The examinations are conducted, as far as possible, by demonstrations of objects placed before the candidates. Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at the first period of examination after they have completed their attendance on the necessary classes. Candidates who have passed their examination in the first division of these subjects may be admitted to examination in the second division at the end of their third winter session. Candidates who have passed their examinations in the subjects comprised in the first and second divisions may be admitted to examination in the third division at the end of the fourth winter session. Candidates who have passed their examinations in the subjects comprised in the first, second, and third divisions may be admitted to examination in the fourth or final division when they have completed the fifth year of study.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s*., and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz.: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6*s*.; for the Second Division (Anatomy, Physiology, and Materia Medica and Therapeutics), £6 6*s*.; for the Third Division (Pathology), £4 4*s*.; and for the Final Division (Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery, and Forensic Medicine and Public Health), £6 6*s*. The fee to be paid for the degree of Doctor of Medicine is £10 10*s*., and the fee to be paid for the degree of Master of Surgery is £10 10*s*.

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but eight of the subjects other than clinical must be taken in this or some other recognised university entitled to confer the degree of M.D., and at least two years of the course must be taken in Glasgow University. Under the new regulations four degrees, open both to men and women, are conferred: M.B. and Ch.B. (always conjointly), M.D. and Ch.M. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, with possible options to students whose native language is not English in the case of the fourth subject. Candidates taking the

Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

A special University certificate in Diseases of Tropical Climates is also granted to qualified medical practitioners and others specially interested, after approved attendance on the courses of instruction in Tropical Diseases and Practical Bacteriology, including the Micro-organisms of Tropical Diseases.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: Provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin or Greek.

No one is admitted to the degrees of Bachelor of Medicine and Bachelor of Surgery who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months. These courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of 25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, and one of the three following, viz.—Diseases of Children; Diseases of the Larynx, Ear, and Nose; and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have attended, under the superintendence of a registered medical practitioner, twelve cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution, and have conducted personally six or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

Next, with respect to the places and institutions at which the studies of the candidate may be prosecuted, the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz., Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than eight must be taken in the University of Edinburgh or in some other university of the United Kingdom, or in some Foreign or Colonial university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court, or in a college incorporated with, or affiliated to, a university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court.

Women are admitted to graduation in medicine under practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum, the regulations as to places of study contained in the foregoing paragraph do not apply to them. The Medical College for Women, 30, Chambers-street, Edinburgh, has been recognised as a medical school whose courses of instruction qualify for graduation.

Each candidate is examined, both in writing and orally, and clinically where the nature of the subject admits:—First, in Chemistry, Zoology, Botany, and Physics; second, in Anatomy, Physiology, Materia Medica, and Therapeutics; third, in Pathology; and fourth in Surgery, Medicine, Midwifery, Forensic Medicine, and Public Health, and clinically in Medicine and Surgery in a hospital. The examinations are conducted, as far as possible, by demonstrations of objects placed before the candidates. Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at the first period of examination after they have completed their attendance on the necessary classes. Candidates who have passed their examination in the first division of these subjects may be admitted to examination in the second division at the end of their third winter session. Candidates who have passed their examinations in the subjects comprised in the first and second divisions may be admitted to examination in the third division at the end of the fourth winter session. Candidates who have passed their examinations in the subjects comprised in the first, second, and third divisions may be admitted to examination in the fourth or final division when they have completed the fifth year of study.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s.*, and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz.: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6*s.*; for the Second Division (Anatomy, Physiology, and Materia Medica and Therapeutics), £6 6*s.*; for the Third Division (Pathology), £4 4*s.*; and for the Final Division (Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery, and Forensic Medicine and Public Health), £6 6*s.* The fee to be paid for the degree of Doctor of Medicine is £10 10*s.*, and the fee to be paid for the degree of Master of Surgery is £10 10*s.*

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but eight of the subjects other than clinical must be taken in this or some other recognised university entitled to confer the degree of M.D., and at least two years of the course must be taken in Glasgow University. Under the new regulations four degrees, open both to men and women, are conferred: M.B. and Ch.B. (always conjointly), M.D. and Ch.M. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, with possible options to students whose native language is not English in the case of the fourth subject. Candidates taking the

The following degrees, &c , are conferred by the University in this Faculty —Bachelor of Medicine, Doctor of Medicine, Bachelor of Surgery, Master of Surgery, Bachelor of Obstetrics and Master of Obstetrics; in Sanitary Science, a special diploma , and in Mental Disease a special diploma.

The course for degrees in Medicine, &c , is of at least five years' duration

The First Examination in Medicine —Students may be admitted to this examination after the lapse of one academical year from the time of their matriculation. They must also have previously passed the First University Examination and completed the first year of the medical curriculum The subjects of this examination are Natural Philosophy, Systematic Chemistry, Zoology and Botany The examination in each subject will comprise three parts —(1) a written examination , (2) an oral examination , and (3) a practical examination Particular weight will be given to the practical part of the examination Candidates at the First Examination in Medicine who at the First University Examination did not obtain 30 per cent of the marks assigned to French or German will be required to present themselves for a qualifying examination in French or German Failure to obtain 30 per cent of the marks assigned to either of those languages will involve the loss of the examination

The Second Examination in Medicine —Students will be admitted to this examination after the lapse of one medical year from the time of passing the First Examination in Medicine, provided they have completed the second year of the medical curriculum The subjects for this examination are Anatomy, Physiology, and Practical Chemistry

The Third Examination in Medicine —Students will be admitted to this examination after the lapse of one medical year from the time of passing the Second Examination in Medicine, provided they have completed the third year of the medical curriculum The subjects for this examination will be Anatomy Physiology, and Materia Medica (Pharmacology and Therapeutics)

The Examination for the Medical Degrees —Students will be admitted to this examination after the lapse of not less than one medical year from the time of passing the Third Examination in Medicine, provided they have completed the course of medical studies prescribed for the entire medical curriculum The examination consists of *three parts or divisions* —(*a*) Medicine, including Therapeutics and Pathology, Mental Diseases, Medical Jurisprudence and Sanitary Science (*b*) Surgery, Theoretical, Clinical Operative; Surgical Anatomy, with Ophthalmology and Otology , Surgical Pathology (*c*) Midwifery and Diseases of Women and Children Each part of this examination must be passed as a whole Upon completing satisfactorily his examination in all three divisions the candidate will, in addition to the parchment diplomas recording his admission to the Medical Degrees of M B B Ch , and B A O , receive a certificate of having passed a qualifying examination in the subjects of Medicine Surgery, and Midwifery The fee for this certificate is £10, which must be paid prior to the candidate's admission to these Degrees

The M D Degree —Candidates may present themselves for the examination for this degree after the lapse of three academical years from the time of obtaining the degrees of M B , B Ch , B A O They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical surgical or obstetrical practice or in the military or naval medical service Every candidate will be examined at the bedside, and required to diagnose at least three medical cases, and prescribe treatment, and to write detailed reports on at least two cases to be selected by the examiners and to discuss the questions arising thereon

The M Ch Degree —This degree will be conferred only on graduates in Medicine of the University of at least three years' standing They must at the same time produce a certificate of having been for at least two academical years, engaged in hospital or private medical, surgical or obstetrical practice or in the military or naval medical service The examination for this degree will comprise Surgical Diseases and Surgery, both theoretical and operative; Surgical Anatomy , Ophthalmology and Otology , and will include—(*a*) a written examination , (*b*) a clinical examination , (*c*) an examination on Surgical Instruments and Appliances , and (*d*) an examination in Operative Surgery

The M A O Degree —This degree will be conferred only on graduates in Medicine of the University of at least three years' standing They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice or in the military or naval military service The examination will comprise the Theory and Practice of Midwifery and of Diseases of Women and Children, Pathology, and the Use of Instruments and Appliances and will include—(*a*) a written examination , (*b*) a clinical examination as far as practicable , and (*c*) an oral examination, with practical illustrations

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND[3]

Regulations relating to the several Examinations applicable to Candidates who commenced their Professional Education on or after Jan 1st, 1892

Any candidate who desires to obtain both the licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth One of the five years may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics Practical Chemistry, and Biology

Professional Examinations —There are three Examinations, called herein the First examination, the Second examination, and the Third or Final examination, each being partly written, partly oral, and partly practical These examinations will be held in the months of January, April, July and October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr F G Hallett, secretary of the Examining Board, Examination Hall, Victoria Embankment, W C , fourteen clear days before the day on which the examination commences, transmitting at the same time the required certificates

The subjects of the First examination are—Chemistry and Physics, Practical Pharmacy, and Elementary Biology. A candidate may take this examination in three parts at different times *A candidate will be admitted to examination* in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology on producing evidence of having passed the required Preliminary examination and of having received instruction in these subjects at a recognised institution, *or he may take Pharmacy* at any time during the curriculum A candidate rejected in one part or more of the First examination will not be admitted to re examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-*examined* in the subject or subjects in which he has been rejected If referred in Chemistry or Biology he must produce evidence of further instruction at a recognised institution Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a university in the United Kingdom in India, or in a British colony will be exempt from examination in those subjects in which he has passed

The fees for admission to the First examination are as *follows* For the whole examination, £10 10*s* , for re-examination after rejection in Part I , £3 3*s* , and for re-examination in each of the other parts, £2 2*s*

The subjects of the Second examination are Anatomy and Physiology Candidates will be required to pass in both subjects at one and the same time Candidates will be admissible to the Second examination at the expiration of two winter sessions and one summer session (or fifteen months during the ordinary sessions) from the date of passing the Preliminary examination, and after the lapse of one Winter and one Summer Session from the date of passing Parts I and III of the First examination on production of the required certificates of professional study

A candidate referred on the Second examination will be required before being admitted to re examination to produce a certificate that he has pursued, to the satisfaction of

---

[3] The diploma of Member of the Royal College of Surgeons of England and the Licence of the Royal College of Physicians of London are no longer granted separately except to students who commenced their professional study prior to Oct 1st 1884

Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery (12 cases of labour), Vaccination, Children's Diseases, Fevers, Ophthalmology, and Post-mortem Examinations.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court.

Women shall be admitted to graduation in Medicine, subject to the provisions of Ordinance No. 18 [General No. 9—Regulations for the Graduation of Women and for their Instruction in the Universities]: Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions herein laid down with respect to the Preliminary Examination, and shall be examined in all the subjects necessary for graduation by the Examiners of the University of St. Andrews. All the classes necessary for graduation shall be taken in the University of St. Andrews, except in so far as instruction obtained elsewhere is allowed by the said Ordinance.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate shall be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy, Physiology, and Materia Medica; third, in Pathology, and Forensic Medicine and Public Health; and fourth, in Surgery and Clinical Surgery, Practice of Medicine and Clinical Medicine, and Midwifery.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas, and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 10 guineas, exclusive of any stamp duty which for the time may be demanded. The fee to be paid for the degree of Master of Surgery shall be 10 guineas.

The whole medical curriculum can be taken in University College or the first two years in United College.

Bursaries, United College, St. Andrews.—Fourteen Taylour Thomson Bursaries for female Medical students of the annual value of from £20 to £30 each, tenable for one or two years. The Bursaries are awarded in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Examination, and who are prepared to take two Anni Medici at the United College, St. Andrews.

University College, Dundee.—(*a*) Open to either sex Eleven Entrance Bursaries of £15, tenable for one year. (*b*) Open to either sex: Four £20 and three £15, second year. (*c*) Four £20 and two £15, third year. (*d*) Bute Bursary, founded in 1893 by the late Most Honourable the Marquis of Bute, K.T. This Bursary consists of the free proceeds of £1000. (*e*) Two Bursaries of the annual value of £25, tenable for three years at either University College, Dundee, or at any Scottish University (local candidates only).

For further particulars apply to the Dean of the Medical Faculty, University College, Dundee, N.B.

UNIVERSITY OF DUBLIN (TRINITY COLLEGE).

Matriculation.—All students in the School of Physic intending to practise Physic must pass a matriculation examination, for which a fee of 5*s.* is payable. No student can be admitted for the winter course after Nov. 25th.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be concurrent with the medical course, and the B.A. degree need not be taken before the final medical examinations, but the medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures — Systematic, Practical and Applied Anatomy, Chemistry and Practical Chemistry, Surgery and Operative Surgery, Histology, Botany, Zoology, Physics, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Dublin Hospital (one year at a recognised London or Edinburgh hospital before the commencement of the Dublin curriculum may be counted as one year spent in such Dublin hospital); (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 30 cases, six months; (6) Ophthalmic Surgery, three months. Two examinations have to be passed. The Previous Medical or Half M.B. Examination, including Physics and Chemistry, Botany and Zoology, Anatomy and Institutes of Medicine (Practical Histology and Physiology), may be passed when credit has been obtained for the corresponding subjects and these may be taken separately if desired. The Final Examination is subdivided into five sections, comprising Applied Anatomy (Medical and Surgical), Applied Physiology, Jurisprudence and Hygiene, Materia Medica and Therapeutics, Medicine, Surgery, Pathology, Midwifery, Gynæcology, Obstetrical Anatomy, Clinical Medicine, Mental Diseases, Clinical Surgery, Operations, Clinical Ophthalmology. The first seven of these subjects may be passed in the fourth year and the last eight in the fifth year. Fee for the *Liceat ad Examinandum*, £10. Fee for the degrees, £17.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also read a thesis before the Regius Professor of Physic. Total amount of fees for this degree, £13.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass an examination in the following subjects:—1. Clinical Surgery. 2. Operative Surgery. 3. Surgical Pathology. 4. Surgery. 5. Surgical Anatomy (on the dead subject), and one of the following optional subjects:—1. Surgery in one of the following branches—viz., Ophthalmic and Aural, Gynæcological, and Dental. 2. Mental Disease. 3. Medical Jurisprudence and Hygiene. 4. Advanced Anatomy and Physiology. 5. Comparative Anatomy. Fee for the degree of Master in Surgery, £11.

Master in Obstetric Science.—A Master in Obstetric Science must be fully qualified and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery.[2] He is then required to pass an examination in the following subjects:—1. Practice of Midwifery. 2. Gynæcology. 3. Anatomy of Female Pelvis and Elementary Embryology. 4. Clinical Gynæcology. Fee for the degree of Master in Obstetric Science, £5.

University Diplomas.—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine, and must have completed two years in Arts and five years in Medical Studies. The Course and Examination necessary for the diplomas are the same as for the degrees, except that the candidate is not required to attend the Lectures on Botany and Zoology, nor to pass the Previous Medical examination in those subjects. A diplomate, on completing his course in Arts and proceeding to the degree of B.A., may become a Bachelor by attending the Lectures on Botany and Zoology, passing the Previous Medical examination in those subjects, and paying the degree fees. Fee for the *Liceat ad Examinandum*, £10. Fee for the diplomas in Medicine, Surgery, and Midwifery, £11.

ROYAL UNIVERSITY OF IRELAND.

All Degrees, Honours, Exhibitions, Prizes, Scholarships, and Studentships in this University are open to students of either sex.

Candidates for any degree in this University must have passed the Matriculation Examination. Students from other universities and colleges are included in this rule.

---

[2] Existing graduates in Medicine of the standing of M.D. are no required to attend this course.

are conferred by the University Medicine, Doctor of Medicine, of Surgery, Bachelor of Obstetrics and Master of Obstetrics; in Sanitary Science, a special diploma; and in Mental Disease, a special diploma.

The course for degrees in Medicine, &c., is of at least five years' duration.

The First Examination in Medicine.—Students may be admitted to this examination after the lapse of one academical year from the time of their matriculation. They must also have previously passed the First University Examination and completed the first year of the medical curriculum. The subjects of this examination are Natural Philosophy, Systematic Chemistry, Zoology and Botany. The examination in each subject will comprise three parts:—(1) a written examination; (2) an oral examination; and (3) a practical examination. *Particular weight will be* given to the practical part of the examination. Candidates at the First Examination in Medicine who at the First University Examination did not obtain 30 per cent. of the marks assigned to French or German will be required to present themselves for a qualifying examination in French or German. Failure to obtain 30 per cent. of the marks assigned to either of those languages will involve the loss of the examination.

The Second Examination in Medicine.—Students will be admitted to this examination after the lapse of one medical year from the time of passing the First Examination in Medicine, provided they have completed the second year of the medical curriculum. The subjects for this examination are Anatomy, Physiology, and Practical Chemistry.

The Third Examination in Medicine.—Students will be admitted to this examination after the lapse of one medical year from the time of passing the Second *Examination in Medicine, provided they have completed* the third year of the medical curriculum. The subjects for this examination will be Anatomy, Physiology, and Materia Medica (Pharmacology and Therapeutics).

The Examination for the Medical Degrees.—Students will be admitted to this examination after the lapse of not less than one medical year from the time of passing the Third Examination in Medicine, provided they have completed the course of medical studies prescribed for the entire medical curriculum. The examination consists of three parts or divisions:—(*a*) Medicine, including Therapeutics and Pathology, Mental Diseases, Medical Jurisprudence and Sanitary Science. (*b*) Surgery, Theoretical, Clinical, Operative; Surgical Anatomy, with Ophthalmology and Otology; Surgical Pathology. (*c*) Midwifery and Diseases of Women and Children. Each part of this examination must be passed as a whole. Upon completing satisfactorily his examination in all three divisions the candidate will, in addition to the parchment diplomas recording his admission to the Medical Degrees of M B., B.Ch., and B.A O., receive a certificate of having passed a qualifying examination in the subjects of Medicine Surgery, and Midwifery. The fee for this certificate is £10, which must be paid prior to the candidate's admission to these Degrees

The M.D. Degree.—Candidates may present themselves for the examination for this degree after the lapse of three academical years from the time of obtaining the degrees of M.B , B.Ch., B.A.O. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical surgical, or obstetrical practice, or in the military or naval medical service. Every candidate will be examined at the bedside, and required to diagnose at least three medical cases, and prescribe treatment, and to write detailed reports on at least two cases to be selected by the examiners and to discuss the questions arising thereon.

The M. Ch. Degree.—This degree will be conferred only on graduates in Medicine of the University of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval medical service. The examination for this degree will comprise Surgical Diseases and Surgery, both theoretical and operative; Surgical Anatomy; Ophthalmology and Otology; and will include—(*a*) a written examination; (*b*) a clinical examination; (*c*) an examination on Surgical Instruments and Appliances; and (*d*) an examination in Operative Surgery.

The M.A.O. Degree.—This degree will be conferred only on graduates in Medicine of the University of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval military service. The examination will comprise the Theory and Practice of Midwifery and of Diseases of Women and Children, Pathology, and the Use of Instruments and Appliances and will include—(*a*) a written examination; (*b*) a clinical examination as far as practicable; and (*c*) an oral examination, with practical illustrations.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.[3]

Regulations relating to the several Examinations applicable to Candidates who commenced their Professional Education on or after Jan. 1st, 1892.

Any candidate who desires to obtain both the licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth. One of the five years may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics, Practical Chemistry, and Biology.

Professional Examinations.—There are three Examinations, called herein the First examination, the Second examination, and the Third or Final examination, each being partly written, partly oral, and partly practical. These examinations will be held in the months of January, April, July, and October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr. F. G. Hallett, secretary of the Examining Board, Examination Hall, Victoria Embankment, W.C, fourteen clear days before the day on which the examination commences, transmitting at the same time the required certificates.

The subjects of the First examination are—Chemistry and Physics, Practical Pharmacy, and Elementary Biology. A candidate may take this examination in three parts at different times. A candidate will be admitted to examination in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology on producing evidence of having passed the required Preliminary examination and of having received instruction in these subjects at a recognised institution, *or he may take Pharmacy* at any time during the curriculum. A candidate rejected in one part or more of the First examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry or Biology he must produce evidence of further instruction at a recognised institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a university in the United Kingdom in India, or in a British colony will be exempt from examination in those subjects in which he has passed.

The fees for admission to the First examination are as follows: For the whole examination, £10 10*s.*; for re-examination after rejection in Part I., £3 3*s.*; and for re-examination in each of the other parts, £2 2*s.*

The subjects of the Second examination are Anatomy and Physiology. Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second examination at the expiration of two winter sessions and one summer session (or fifteen months during the ordinary sessions) from the date of passing the Preliminary examination, and after the lapse of one Winter and one Summer Session from the date of passing Parts I. and III. of the First examination on production of the required certificates of professional study.

A candidate referred on the Second examination will be required before being admitted to re-examination, to produce a certificate that he has pursued, to the satisfaction of his teachers, in a recognised place of study, his Anatomical and Physiological studies during a period of not less than three months subsequently to the date of his reference.

---

[3] The diploma of Member of the Royal College of Surgeons of England and the Licence of the Royal College of Physicians of London are no longer granted separately except to students who commenced their professional study prior to Oct. 1st, 1884.

The fees for admission to the Second examination are: £10 10*s*. for the whole examination, and £6 6*s*. for re-examination after rejection.

The subjects of the Third or Final examination are: Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics, Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First examination will not be re-examined in that subject at the Third examination. Part II. Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for examination in Midwifery and Diseases of Women at any time after the completion of the fourth year of professional study at a Medical School and Hospital, not less than one year after passing the Second examination, on production of the required certificates Candidates may present themselves for examination in Medicine and Surgery at the completion of the five years' curriculum, not less than two years from the date of passing the Second Examination, on production of the required certificates. Candidates may take this examination in three parts at different times, or they may present themselves for the whole examination at one time. They will be required to produce the following evidence before being admitted to the several parts of the Third, or Final examination—viz., in Medicine, of having attended Lectures on Medicine, Pathology including Bacteriology, Pharmacology and Therapeutics, Forensic Medicine, and Public Health; Practical Instruction in Medicine; Medical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Medicine during nine months; of having discharged the duties of Medical Clinical Clerk; Practice of a Fever Hospital and Clinical Demonstrations at a recognised Lunatic Asylum; in Surgery, of having attended Lectures on Surgery and Pathology including Bacteriology; Practical Instruction in Surgery; of having performed operations upon the Dead Subject; Surgical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Surgery during nine months; of having discharged the duties of Surgical Dresser, and Clinical Instruction in Ophthalmology; in Midwifery of having attended Lectures on Midwifery; Practical Instruction in Midwifery; Clinical or other Lectures, with Practical Instruction in Diseases Peculiar to Women; and of attendance on 20 Labours.

The fees for admission to the Third or Final examination are as follows: For the whole examination, £21. Part I. For re-examination in Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health, £5 5*s*.; for re-examination in Practical Pharmacy (if taken at this examination), £2 2*s*. Part II. For re-examination in Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances, £5 5*s*. Part III. For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s*.

A candidate referred on the Third or Final examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received, subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second examinations of the Examining Board, may enter for the Final examination at the expiration of two years from the date of passing in Anatomy and Physiology, on production of the required certificates.

Graduates in Medicine of certain recognised Indian, Colonial, and Foreign universities may present themselves for the Final examination under special conditions which can be ascertained on application to the Secretary.

ROYAL COLLEGES OF SURGEONS AND PHYSICIANS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow, or in Edinburgh and Glasgow, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery. Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries.

Professional Education.—1. Candidates who commenced medical study *before* Jan. 1st, 1892, must have been engaged in professional study during 45 months from the date of registration as medical students by the General Medical Council, which period shall include not less than four winter sessions' attendance at a recognised medical school. 2. The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of instruction: Anatomy, during at least six months; Practical Anatomy, twelve months; Chemistry, six months; Practical or Analytical Chemistry, three months; Materia Medica, three months; Physiology, six months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery and the Diseases of Women and Children, three months; Medical Jurisprudence, three months; Pathological Anatomy, three months. The number of lectures certified as attended at any school not situated in Scotland should not be less than three-fourths of the total number of lectures delivered in a course. 3. The candidate must also produce the following certificates:—(*a*) Of having attended not less than six cases of labour, three of these to be conducted personally under the direct superintendence of the practitioner who signs the certificate, who must be a registered medical practitioner. (*b*) Of having attended, for three months, instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy. (*c*) Of having attended for 24 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons. (*d*) Of having attended for six months (or three months, with three months' hospital clerkship) the practice of a public dispensary specially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital or of having acted for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities; this attendance should be made after the student has passed the First and Second examinations. (*e*) Of having been instructed by a registered medical practitioner in the Theory and Practice of Vaccination, and of having performed operations under the teacher's inspection, during a period of not less than six weeks.

Candidates shall be subjected to three Professional examinations, and they may enter either for the whole of an examination or for a division thereof.

First Examination.—The First examination shall embrace the two divisions of (1) Chemistry and (2) Elementary Anatomy and Histology, and shall take place not sooner than the end of the first year, including the period of a winter and a summer session. For the whole examination taken at one time the sum of £5 5*s*. must be paid to the inspector of certificates not later than one week preceding it, after which no candidate will be entered. After rejection for re-entry in all subjects, £3 3*s*.; for re-entry after obtaining exemption from re-examination in one or two subjects, £2 2*s*.; for entering for one division of subjects separately, £3 3*s*.; and for each re-entry after rejection, £2 2*s*. Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the First examination before any of the boards specified in the Regulations will be exempt from examination in such subjects.

Second Examination.—The Second examination shall [illegible] my, (2) Physiology, [illegible] of which shall con- [illegible] may be entered for separately. The examination shall not take place before the termination of the summer session of the second year of study, including two winters and two summers. The fees for admission to this examination, payable not later than one week before the day of examination, are as follows:—For the whole examination, £5 5*s.*; after rejection for re-entry in all subjects, £3 3*s.*; for re-entry after obtaining exemption from re-examination in one or two subjects, £2 2*s*; for entering for one subject separately, £2 2*s.*; and for each re-entry therein after rejection, £2 2*s.* Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the Second examination before any of the boards specified in the Regulations will be exempt from examination in such subject or subjects.

Final Examination.—The Final examination shall embrace the three divisions of—(1) the Principles and Practice [illegible] and shall not take place before the termination of the full period of study. The fees for this examination, payable not later than one week before the examination day, are as follows: For the whole examination, taken at one time, in the case of candidates who have passed the First and Second examinations of the board, £15 15*s.*, of which £10 10*s.* shall be returned to unsuccessful candidates. For entering for each of the three divisions of subjects separately, £6 6*s.*, and on re-entry after rejection, £2 2*s.* in respect of each division or part thereof. This rule will also apply to any subsequent rejection. Any candidate admitted to the Final examination, on the footing of having passed in the subjects of the First and Second examinations at a recognised board, shall, on entering, pay the full fee of £26 5*s.*

All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical Use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c.

REGULATIONS FOR CANDIDATES WHO COMMENCED STUDY *after* JANUARY 1ST, 1892.

In addition to the courses above prescribed candidates are required to attend the following courses: Physics, three months; Elementary Biology, three months; Diseases and Injuries of the Eye, three months; Insanity, three months; Infectious Diseases, three months; and a third year of Hospital Practice with Clinical instruction (which may include the study of special diseases).

The curriculum lasts for five years; the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries. Six months of the fifth year may be passed by the student as a pupil to a registered practitioner possessing such opportunities of imparting practical knowledge as may be deemed satisfactory by the Committee of Management. The student's regularity of attendance in the wards and out-patient departments of the hospitals and at the post-mortem examinations should be duly ascertained and noted on the certificate.

Candidates shall be subjected to four professional examinations:

First Examination.—The First examination shall embrace the following divisions of subjects—(1) Physics, (2) Chemistry, and (3) Elementary Biology. The fees payable for admission to the First examination shall be for the whole examination, £5; for each division separately, £2 10*s.*

Second Examination.—The Second examination shall embrace Anatomy and Physiology including Histology; and candidates may be admitted to this examination at the end of the second year of medical study. The fees payable for admission to the Second examination shall be—for the whole examination, £5, and for re-entry after rejection, £3.

Third Examination.—The Third examination shall embrace Pathology and Materia Medica with Pharmacy. The fees payable for admission to the Third examination shall be—for the whole examination, £5; for re-entry in both subjects after rejection, £3.

Final Examination.—The Final examination shall not be passed earlier than the end of the fifth year of study and shall embrace the following subjects:—Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; Midwifery and Diseases of Women and of New-born Children; and Medical Jurisprudence and Public Health. All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface markings, &c. The fees payable for the Final examination shall be,—for the whole examination, £15, for re-entry in all subjects after rejection, £5.

There are six periods of examination annually, four in Edinburgh and two in Glasgow, and candidates may present themselves at either examining centre irrespectively of the place of the previous examination. The Registrar in Edinburgh is Mr. J. Robertson, Solicitor, 54, George-square; and the Registrar in Glasgow, Mr. A. Duncan, LL.D., 242, St. Vincent-street, to whom fees and certificates must be sent.

Note.—In applying for copies of the Regulations students should state whether they commenced medical study before or after Jan. 1st, 1892.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

The Royal College of Surgeons of Edinburgh admits to the examination for its single Licence any candidate who already holds a Diploma in Medicine of any British, Indian, or Colonial university or of any British or Colonial College of Physicians, or of the Society of Apothecaries of London or Apothecaries' Hall, Dublin, granted under the provisions of the Medical Act, 1886, whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above. Female practitioners are now admitted to the Licence of the College but not to the Fellowship, and the regulations for the licence apply to practitioners of either sex.

Every candidate for a surgical diploma must have followed his course of study in a university, or in an established school of medicine, or in a provincial school specially [illegible] Surgeons of that division of the [illegible] s situate.

[illegible] School of Medicine are comprehended the medical schools of those cities of Great Britain and Ireland in which Diplomas in Surgery are granted, and such colonial and foreign schools as are similarly circumstanced in the countries in which they exist.

PROFESSIONAL EXAMINATION FOR THE DIPLOMA OF THE COLLEGE.

Candidates for the Diploma of the College will be subjected to one professional examination, partly in writing and partly practically and orally.

Opportunities for the examinations will be presented four times in each year. On each of these occasions the candidates will assemble to write answers to the questions proposed, and the clinical and oral examinations shall be conducted on the days immediately succeeding.

Unsuccessful candidates will be remitted to their studies for a period to be determined by the judgment of the examiners, but not in any case for less than three months.

The examination will embrace the principles and practice of surgery (including operative surgery and surgical pathology), clinical surgery, and surgical anatomy, and will not take place before the termination of the full period of study.

Applications for examination must be made to Mr. James Robertson, solicitor, 54, George square, Edinburgh, clerk to the College, not later than one week prior to the date of examination.

On the production of the required document Mr. Robertson will give the candidate an order authorising the examiners to admit him to examination.

The fee of £15 15*s.* payable to the College must be lodged in the hands of Mr. Robertson not later than one week preceding the examination day. The sum of £10 10*s.* will be returned to each unsuccessful candidate. Under special circumstances candidates can be examined on days other than those fixed by the regulations. The fee for a special examination is as follows, viz., £20 for examination, of which £10 will be returned to candidates remitted on examination.

In order to test more effectually the practical knowledge of candidates recent dissections and anatomical specimens will be employed during examination. They will also be subjected to a practical clinical examination in the Surgical Hospital, including the application of surgical apparatus, bandages, surface markings, &c., and may, if it be considered necessary to test their knowledge, be required to perform operations on the dead body.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

The Royal College of Physicians of Edinburgh grants its single Licence on terms similar to those of the Royal College of Surgeons of Edinburgh, as above mentioned.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The College issues its Licences in Medicine and in Midwifery to registered medical practitioners whose names appear on the Medical Register of the United Kingdom.

The Licence in Medicine.—The subjects of examination are: Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

The Licence in Midwifery.—Candidates must produce certificates of having attended a course of lectures on Midwifery in a school recognised by the College, and of having attended Practical Midwifery and Diseases of Women, for six months, at a lying-in hospital or maternity recognised by the College; or, where such hospital attendance cannot have been obtained during any period of the candidate's course of study, of having been engaged in Practical Midwifery under the supervision of a registered medical practitioner holding a public medical appointment, the certificate in either case to state that not less than 20 labour cases have been actually attended. A registered medical practitioner of five years' standing is exempted from the examination by printed questions.

Fees.—Fee for the Licence to practise Medicine, £15 15*s.* Fee for examination for the Licences in Medicine and Midwifery, if obtained within the interval of a month, £16 16*s.* —to be lodged in one sum.[4] Fee for special examination for the Licence to practise Medicine, £21. Fee for examination for the Licence to practise Midwifery, £3 3*s.* Fee for special examination for the Licence to practise Midwifery, £5 5*s.* The examinations for these licences are held in the week following the first Friday in February, May, and November.

The Membership.—A candidate for the Membership of the College must be a Licentiate of the College of three years' standing, or if he is a graduate of Arts of a University in the United Kingdom, a licentiate of one year's standing, or a practitioner of seven years' standing, he is admitted to the membership after one year. He must not be engaged in trade, dispense medicine, or practise in partnership. He must also have held during at least six months the office of resident physician or resident medical pupil, or have acted during the same period as medical clinical clerk in a recognised hospital, or have been in medical charge for at least 12 months of a public institution for the treatment of the sick. Every candidate must pass an examination in Principles of Medicine, including Pathology, Morbid Anatomy, and Medical Chemistry, Practice of Medicine, including Principles of Public Health, and Clinical Medicine. The fee for the examination is £21 The examinations are held in January, April, July, and October. Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Licence in Surgery.—Candidates who hold registrable surgical diplomas (including the Licence of the Apothecaries Company of London granted since October, 1886) are admitted to examination without further evidence of study. Candidates who hold medical qualifications only (including the L S. A. granted before October, 1886) will be required to produce certificates of two courses of lectures in Anatomy and Dissections, one course of Practical Histology, one course of lectures in Surgery, and one course of Operative Surgery. Candidates are examined in Surgery, Clinical Surgery, Operative Surgery on the subject, Surgical Appliances, and Ophthalmic Surgery. The examination is partly written, partly *virâ voce,* and partly practical. The fee is £26 5*s.*, of which £5 5*s.* is retained by the College in the case of unsuccessful candidates.

Diploma in Midwifery.—A diploma in Midwifery is granted after examination to persons possessing a registrable qualification. Candidates must produce evidence of (*a*) attendance on a course of lectures on Midwifery and Diseases of Women and Children in some school recognised by the Council; (*b*) attendance on six months' practice in connexion with a recognised lying-in hospital or dispensary for lying-in women and children, and (*c*) of having conducted at least 30 labour cases. The fee for the examination is £15 15*s.*, of which £5 5*s.* is retained by the College in case the candidate is unsuccessful.

Fellowship Examinations.—A candidate for the Fellowship shall make application to the President and Council to be admitted to examination and if the Council decide to entertain that application it shall lie on the table for at least a fortnight for consideration before it is put to the Council for approval. All the required evidences of study or qualification, fees, and testimonials as to character must be submitted previously to the application being considered, and the candidate shall then, if approved by the Council, be admitted to the next Sessional examination or to a Special examination if granted by the Council, at such date as the President may fix. In order that these regulations may be carried out candidates are required to lodge their applications complete with the Registrar at least one month before the date of examination. Sessional Fellowship examinations commence, as far as arrangements permit, on the third Mondays in February, May, and November. Special examinations may be granted at other times by the Council if they see fit, on sufficient cause being shown, except during the months of August and September. Candidates for the Fellowship examination are divided into two Grades: I., Licentiates or Graduates in Surgery of less than 10 years' standing; II., Licentiates or Graduates in Surgery of more than 10 years' standing. Students not either Licentiates or Graduates in Surgery are permitted to present themselves for the *Primary* examination under Grade I.

Grade I.—Candidates are required to pass two examinations — Primary and Final. Candidates may present themselves for the Final examination immediately after passing the Primary part, provided they have complied with the necessary regulations. The subjects for the Primary examination are (*a*) Anatomy, including Dissections; and (*b*) Physiology and Histology.

The subjects for the Final examination are (*a*) Surgery, including Clinical and Operative Surgery; and (*b*) Surgical Pathology.

Grade II.—The subjects for examination are (*a*) Surgical Anatomy; (*b*) Surgery, including Clinical and Operative Surgery; and (*c*) Surgical Pathology.

Fees.—Grade I.:—For Licentiates of the College: for Primary examination, £15 15*s.*; for Final examination, £10 10*s.* For Licentiates in Surgery of other licensing bodies: for Primary examination, £26 5*s*; for Final examination, £15 15*s* For Students of the College: for Primary examination, £5 5*s.*; for Final examination, £21. For Students of other licensing bodies: for Primary examination, £10 10*s.*; for Final examination, £31 10*s.* Grade II.:—Licentiates of the College, £26 5*s.*; Licentiates in Surgery of other licensing bodies, £42; extra fee for Special examination, £10 10*s.*

In case of rejection £10 10*s.*, in addition to the special fee, if such has been paid, is retained by the College and is not allowed in the fees of re-examination.

A rejected candidate will not be again admitted to examination until after a period of three months.

Further particulars can be obtained from the Registrar of the College, Stephen's-green, West Dublin.

ROYAL COLLEGE OF PHYSICIANS AND ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following Regulations are obligatory on all students commencing on or after Oct. 1st, 1903:—

PRELIMINARY EXAMINATION AND REGISTRATION.

Every candidate for the Conjoint Examinations of the Colleges shall produce evidence of having, before entering on medical studies, passed a Preliminary Examination in general education recognised by the Royal Colleges. Each candidate before receiving his diplomas must produce a registrar's certificate or other satisfactory evidence that he

---

[4] Any candidate who has been rejected at the examination for the Licence in Medicine loses this privilege and will be required to pay the full fee of three guineas for the Licence in Midwifery.

bjects for examination for the Preliminary of Medical Education and Registration.

Professional Examinations.

Every candidate is required to pass four Professional Examinations—at the end of the first, second, third, and fifth years respectively of his professional studies. No candidate shall be admitted to the Final or Qualifying Examination within three months of his rejection at the Final or Qualifying Examination by any other Licensing body. All examinations shall be conducted as far as possible by demonstration of objects placed before the candidates.

First Professional Examination.—Every candidate is required, before admission to the First Professional Examination, to produce evidence—(1) of having passed in the subjects of the Preliminary Examination; and (2) of having attended a course of—(*a*) lectures on Theoretical Chemistry, winter course; (*b*) Practical Chemistry, three months' summer or winter course; (*c*) Elementary Biology; and (*d*) Physics. The fee for this examination is £15 15*s*.

The subjects of the First Professional Examination are the following:—1. (*a*) Chemistry; (*b*) Physics. 2. Elementary Biology. The fee is £15 15*s*.

Second Professional Examination.—Candidates are not admissible to this examination before the end of their second winter session. Every candidate is required, before admission to the Second Professional Examination, to produce evidence of having passed the First Professional Examination, and certificates of having attended—(1) Demonstrations and Dissections, two courses of six months; (2) Practical Histology for three months; (3) Lectures on (*a*) Anatomy for six months; (*b*) Physiology for six months.

The subjects of the Second Professional Examination are the following:—1. Anatomy; (2) Histology; (3) (*a*) Physiology; (*b*) Physiology, Anatomy, and Histology. The fee for this examination is £10 10*s*.

Third Professional Examination.—Candidates are not admitted to this examination before the end of their third winter session. Every candidate is required, before admission to the Third Professional Examination, to produce evidence of having passed the Second Professional Examination, and, in addition to the certificates required for the Second Professional Examination, certificates of having attended—(*a*) Pathology; (1) Systematic, (2) Practical, three months each; (*b*) Materia Medica, Pharmacy, and Therapeutics; (*c*) Forensic Medicine and Public Health for three months; (*d*) Surgery for six months; (*e*) Midwifery, including Diseases peculiar to Women and to New-born Children, for six months. Satisfactory evidence must be produced of attendance in fever wards in connexion with the hospital attendance in either the third or a subsequent year.

The subjects for the Third Professional Examination are the following:—(1) Pathology; (2) Materia Medica, Pharmacy, and Therapeutics; (3) Public Health and Hygiene. The fee for this examination is £9 9*s*.

Final Professional Examination.—Candidates may take one or two sections of this examination at the end of the third year but cannot complete it till the expiry of four years from the passing the First Professional Examination. Every candidate is required before admission to produce evidence (1) of having passed the Third Professional Examination; (2) of having attended—(*a*) at a General Hospital for 27 months; (*b*) Clinical Instruction in Ophthalmic and Aural Surgery for three months; (*c*) a Midwifery Hospital or Maternity; (*d*) Vaccination; (*e*) Clinical Instruction in Mental Diseases, if not taken in the fourth year.

The subjects for the Fourth Professional Examination are the following:—(1) Medicine, including Fevers, Mental Diseases, and Diseases of Children; (2) Surgery including Operative Surgery and Ophthalmic Surgery; (3) Midwifery, including Diseases of Women and New-born Children and Vaccination. Every candidate shall produce evidence of having acted as medical clinical clerk and as surgical dresser. Candidates may present themselves for examination in *all* the subjects of the Final Examination at the *same* time or in

The fee for this examination is can be obtained on application mmittee of Management, Royal in.

SOCIETY OF APOTHECARIES OF LONDON.

There are two examinations—Primary and Final. The Final examination is divided into Section I. and Section II. The Primary examination is held quarterly, on the first Wednesday and on the Monday and Thursday of the same week, in the months of January, April, July, and October. Final examinations are held monthly.

The Primary examination consists of two parts. Part I. Elementary Biology; Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids, Heat, Light, and Electricity; Practical Chemistry; and Materia Medica and Pharmacy. A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application. Evidence of instruction in these subjects must be produced prior to examination. Part II. includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one. Evidence must be produced of the candidate's course of study. A schedule for the Primary examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority. Section I. of the Final examination consists of three parts. Part I. includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances. Part II. includes the Principles and Practice of Medicine, Pharmacology, Pathology and Morbid Histology; Forensic Medicine, Hygiene, Theory and Practice of Vaccination; and Mental Diseases. Part III. includes Midwifery, Gynæcology, and Diseases of New-born Children and the Use of Obstetric Instruments and Appliances. Section I. of the Final examination cannot be passed before the expiration of 45 months after registration as medical student, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society. Section II. of the Final examination consists of two Parts. Part I. Clinical Surgery; Part II. Clinical Medicine and Medical Anatomy. Section II. cannot be passed before the end of the fifth year.

The course of study for the Primary examination is as follows:—Elementary Biology, not less than three months; Chemistry and Chemical Physics, six months; Practical Chemistry, three months; Pharmacy and Dispensing, three months; Anatomy, six months; Practical Anatomy with Demonstrations, twelve months; Physiology, six months; Histology with Demonstrations, three months. The study of these subjects must be pursued at a Medical School recognised by the Society. Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination or in a public hospital, infirmary, or dispensary.

The course of study for the Final examination, Section I., includes attendance on the Surgical and Medical Practice

Surgical Lectures, nine months;[5] Dressership, six months; Performance of Surgical Operations on the Dead Body; lectures on Principles and Practice of Medicine, six months; Pathology, three months; Clinical Medical Lectures, nine months;[5] Clinical Clerkship,[5] six months; Forensic Medicine, Hygiene, and Insanity, three months; Midwifery and Gynæcology, three months;

three months; a course of

on 20 Midwifery cases. Th

extend over the above-mentioned period of 45 months.

The course of study for the Final examination Section II. includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society. Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects: Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children. No candidate is eligible for the Final examination who has not completed the curriculum prescribed by the Society, in evidence of which a schedule, to be obtained of the Secretary, must be produced, signed by the Dean of the Medical School or other authority. Prior to Section II. of the Final examination the candidate must produce certificates: (1) of being 21 years of age; (2) of moral character; (3) of the course of medical study; and (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board. Candidates intending to present themselves for examination are required to give 14 days' notice. A form for this purpose will be sent on application.

---

[5] These offices must be held at a hospital, or other institution recognised by the society.

The fee for the Licence is 20 guineas. The examination offices are open from 10 A.M. to 4 P.M.; on Saturdays from 10 A.M. to 1 P.M. All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars, E.C.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who can present certificates of having fully completed the course of study as laid down in the curriculum. The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, also with the privileges of the Apothecary Licence. There are four professional examinations, the total fees in connexion with which amount to 21 guineas. Ladies are eligible for the diploma. Candidates already on the Register will receive the diploma of the Hall upon passing an examination in the subjects which are not covered by their previous qualifications and on paying a fee of 10 guineas. If medicine or surgery be required two guineas extra will be charged.

The fees payable for each examination are as follows:—first professional. £5 5*s.*; second, £5 5*s.*; third, £5 5*s.*; final examination, £6 6*s.* If a candidate gives three clear days' notice of inability to attend he may present himself at the ensuing examination without any further fee. A candidate is allowed for each professional examination which he has completed at any other licensing body except the final. If he has passed only in some of the subjects in a given examination he has to pay the whole of the fee for that examination. The fees for re-examination are for each subject £1 1*s.*, excepting in the subjects of chemistry, pharmacy, surgery, medicine, second anatomy, and ophthalmology, the fees for which are two guineas each. The fee for the final alone is £15 15*s.* when the other examinations have been taken elsewhere. All examination fees are to be lodged in the Sackville-street Branch of the Royal Bank of Ireland to the credit of the Examination Committee. Applications and schedules, together with bank receipt for the fee, must be lodged with the Registrar, Apothecaries' Hall, 40, Mary-street, Dublin, 14 clear days before the first day of examination.

There are four examinations—first, second, third, and final. The first three are held quarterly on the third Monday in January, April, July, and October; there are only two finals, in January and July. The first examination includes biology, physics, theoretical and practical chemistry, with an examination at the bench. Pharmacy is put down in this examination, but it may be taken at any of the first three examinations. Candidates holding a Pharmaceutical licence are exempt from this subject. Osteology (first anatomy) is also a subject of the first professional examination. The subjects for the second professional are anatomy of the whole body (the examination in this subject is practical), materia medica and therapeutics, physiology and practical histology. The third examination consists of pathology, materia medica if not taken at second examination, medical jurisprudence, and hygiene. The final examination includes medicine, oral and clinical surgery, including operations, clinical and oral, clinical ophthalmic surgery, midwifery, and gynæcology. Written papers are required on all these subjects.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must before proceeding to the final examination produce evidence of having been registered as medical students for 57 months, also of having attended courses of instruction as follows:—one course each (winter course of six months) of the following: anatomy (lecture), chemistry (theoretical), midwifery, practice of medicine, physiology or institutes of medicine, surgery, dissections, two courses of six months each. Courses of three months: materia medica, medical jurisprudence, chemistry (practical), practical physiology and histology, operative surgery, physics, clinical ophthalmology, biology, clinical instruction in mental disease, pathology, and vaccination. Medico-chirurgical hospital, 27 months to be distributed, at the student's own discretion, over the last four years of his study. The candidate may substitute for nine months in this hospital attendance six months as a resident pupil. He will be required to present a certificate of having taken notes of at least six medical and surgical cases recorded under the supervision respectively of a physician and surgeon of his hospital. Three months' study of fever—which may be included in his 27 months' hospital attendance—in a hospital containing fever wards, and having taken notes of five cases of fever—viz., either typhus fever, typhoid fever, scarlet fever, small-pox, or measles. Six months' practical midwifery and diseases of women during the winter or summer of the third or the fourth year at a recognised lying-in hospital or maternity. Three months' practical pharmacy in a recognised clinical hospital or a recognised school of pharmacy, or a year in the compounding department of a licentiate apothecary or a pharmaceutical chemist. Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years. Each candidate must produce evidence of having before entering on medical studies passed a preliminary examination in general education recognised by the General Medical Council and of having been registered by that Council as a student in medicine. Certificates of medical study will not be recognised if the commencement of the course to which the certificate refers dates more than 15 days prior to such registration, except in the subjects of physics or biology. This registration is not undertaken by the Hall, but the student must apply to the Registrar of the General Medical Council that he may be so entered. The details of the course of education required and syllabus of the examinations will be supplied on application to the Registrar at 40, Mary-street, Dublin.

UNIVERSITY OF BRUSSELS.

British and other practitioners holding registrable qualifications are admitted to the examination for the Doctorate of the University of Brussels without further curriculum. It is essentially a *practitioner's* examination and is separate from that intended for the Belgian students who take up the medical curriculum of the University. The fees are—For matriculation, £8 12*s.*; for 1st Part, £4 8*s.*; for 2nd Part, £4 4*s.*; for 3rd Part, £4 8*s.*; for legalisation of diploma, 8*s.*—total, £22. Candidates who have paid in advance the fees for the three examinations, and are unsuccessful in the first, recover the fees paid for the second and third; those who fail in the second recover the fees paid for the third examination. Unsuccessful candidates are allowed to come up again three months after rejection on payment of examination fees only, provided this second appearance be in the course of the same academical year (October 1st to June 30th), otherwise they must renew the payment of the matriculation fee of £8 12*s.* There are three examinations, viz.—1st Part: General Medicine; Pathology and Morbid Anatomy; General Therapeutics; Materia Medica and Pharmacology; Special Therapeutics and Mental Diseases. 2nd Part: Surgery; Midwifery; Hygiene; and Medical Jurisprudence. 3rd Part: Clinical examination in Medicine at the Hospital; Clinical Surgical examination; examination in Midwifery, consisting of obstetrical operations on the mannequin (doll and model of pelvis); examination in Operative Surgery, consisting of some of the usual operations on the dead subject, such as Amputation, Ligature of an Artery, &c.; Regional Anatomy on the Dead Body, with Dissections; and Ophthalmology. The first and second parts are theoretical and the third is mainly practical and clinical. The time required for the three examinations seldom exceeds ten days, and is usually less. Candidates have the option of passing each part separately or of taking the three together, and the latter is the usual course; also of demanding a written examination on payment of an additional fee of one guinea for each part, a rule of which candidates rarely or never avail themselves. The examinations which are *vivâ voce*, take place on the first Tuesday in November, December, February, May, and June. Candidates should appear with their diplomas at the Secretary's office not later than 2 P.M. on the day preceding the examination. Most of the examiners speak English and those who do not examine through the medium of an interpreter. Great importance is attached to practical knowledge, but candidates must also possess sound theoretical knowledge, the standard required varying with the subject. Pathological and other specimens are not usually shown. At the June, 1903, examination there were ten candidates; seven passed, including two with honours, and three failed. There are in England at present over 600 graduates holding this degree, and a British Association of Brussels Medical Graduates has been in existence for many years.[6]

Further information may be obtained from Dr. Walter Reeve, 2, Harewood-place, Hanover-square, W.

METROPOLITAN MEDICAL SCHOOLS.[1]

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The clinical practice of the hospital comprises a service of 744 beds, of which 674 are for patients in the hospital at Smithfield and 70 for convalescent patients at Swanley. Ten house physicians and ten house surgeons are appointed annually. During their first six months of office they act as "junior" house physicians and house surgeons and receive a salary of £25 a year. During their second six months they become "senior" house physicians and house surgeons and are provided with rooms by the hospital authorities and receive £80 a year as salary. A resident midwifery assistant and an ophthalmic house surgeon are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two assistant anæsthetists are appointed annually, and receive salaries of £120 and £100 respectively, with rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £60 a year. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers to the surgical in-patients and to the out-patients, and the dressers in the special departments are chosen from the students. All the appointments are now free.

A college is attached to the hospital, in which students can reside, subject to the college regulations.

The Medical School Buildings include three large lecture theatres, a large dissecting room, a spacious library (containing 13,000 volumes), a well-appointed museum of anatomy, physiology, comparative anatomy, materia medica, botany, and pathological anatomy. The pathological museum is the most complete in the kingdom. There are laboratories for chemistry, physiology, pathology, pharmacology, physics, public health, and biology, giving ample accommodation in every department.

The ground of 10 acres is at Winchmore-hill for the use of the Students' Amalgamated Clubs, and all students are expected to become members.

Instruction in Preliminary Science is given to University of London students in chemistry, biology, and physics throughout the year.

Laboratory Instruction for the D.P.H. is provided during the winter and summer sessions, and elementary instruction in Bacteriology is also given throughout the year.

Staff.—Consulting Physicians: Sir William Church, Bart., K.C.B. Physicians: Dr. Gee, Sir Dyce Duckworth, Dr. Hensley, Sir Lauder Brunton, and Dr. Norman Moore. Consulting Surgeons: Mr. Holden, Sir Thomas Smith, Bart., K.C.V.O., Mr. Willett, and Mr. Butlin. Consulting Ophthalmic Surgeon: Mr. H. Power. Surgeons: Mr. Langton, Mr. Marsh, Mr. Walsham, Mr. Harrison Cripps, and Mr. Bruce Clarke. Assistant Physicians: Dr. S. West, Dr. Ormerod, Dr. Herringham, Dr. Tooth, C.M.G., and Dr. A. E. Garrod. Assistant Surgeons: Mr. Bowlby, C.M.G., Mr. Lockwood, Mr. D'Arcy Power, Mr. Waring, and Mr. Eccles. Physician Accoucheur: Dr. Champneys. Assistant Physician Accoucheur: Dr. Griffith. Ophthalmic Surgeons: Mr. Jessop and Mr. Holmes Spicer. Aural Surgeon: Mr. Cumberbatch. Pathologist: Dr. Andrewes. Electrician: Dr. L. Jones. Dental Surgeons: Mr. Paterson and Mr. Ackery. Assistant Dental Surgeons: Mr. Ackland and Dr. Austen. Anæsthetists: Mr. Gill and Mr. E. Willett. Casualty Physicians: Dr. Riviere and Dr. Bainbridge.

This hospital receives within its walls nearly 7000 in-patients annually and its out-patients and casualties amount to more than 160,000 annually. It comprises a service of 744 beds; of these 241 are allotted to the medical cases, 336 to the surgical, including orthopædic cases, 25 to diseases of the eye, 34 to diseases of women, 38 to isolation and general, and 70 at the Convalescent Hospital, Swanley. Special departments have been organised for diseases of the eye, ear, larynx, and skin, as well as for Orthopædic and Dental Surgery in which Chief Assistants and Clinical Assistants are appointed annually. Surgical operations every day at 1.30 P.M. Surgical consultations on Thursday, at 1.30 P.M. The physicians and surgeons deliver clinical lectures weekly during both the winter and the summer sessions. Clinical Lectures on all special subjects are also given. The visits of the [illegible] 1 [illegible]

Lecti[illegible] Moore and D[illegible] Dyce Duckworth, Dr. Hensley, Sir Lauder Brunton, and Dr. N. Moore. Surgery: Mr. Bowlby, and Mr. Bruce Clarke. Clinical Surgery: Mr. Langton, Mr. Marsh, Mr. Butlin, Mr. Walsham, Mr. Cripps, and Mr. Bruce Clarke. Pathology: Dr. Andrewes. Chemistry: Dr. Chattaway. Descriptive and Surgical Anatomy: Mr. Waring. Biology: Dr. Shore. Physiology: Dr. Edkins. Superintendents of Dissections: Mr. Rawling, Mr. Murphy, Mr. C. E. West, Mr. S. R. Scott, and Mr. C. G. Watson. Demonstrators of Morbid Anatomy: Dr. Fletcher, Dr. Drysdale, Mr. Power, and the surgical registrar. Demonstrators of Practical Surgery: Mr. Waring and Mr. Bailey. Operative Surgery: Mr. Bailey, Mr. Eccles, and Mr. Harmer. Demonstrators of Practical Physiology: Dr. Edkins, Dr. Langdon Brown, and Dr. Thomas. Ophthalmic Demonstrators: Mr. Jessop and Mr. Spicer. Lecturer on Physics: Mr. F. Womack. Practical Chemistry: Dr. Chattaway and Dr. Hurtley.

Summer Session.—Materia Medica and Therapeutics: Dr. Calvert. Midwifery and Diseases of Women and Children: Dr. Champneys. Botany: Rev. G. Henslow. Forensic Medicine: Dr. Hensley. Pathology: Dr. Andrewes. Ophthalmic Surgery: Mr. Jessop. Practical Chemistry: Dr. Chattaway and Dr. Hurtley. Comparative Anatomy: Dr. T. W. Shore. Psychology: Dr. Claye Shaw. Public Health: Dr. Hamer. Organic Chemistry: Dr. Chattaway. Demonstrators of Operative Surgery: Mr. Bailey, Mr. Eccles, and Mr. Harmer. Morbid Anatomy: Dr. Andrewes, Dr. Fletcher, Dr. Drysdale, Mr. Power, and the surgical registrar. Diseases of Skin: Dr. Ormerod. Diseases of the Eye: Mr. Jessop and Mr. Holmes Spicer. Diseases of the Ear: Mr. Cumberbatch. Orthopædic Surgery: Mr. Eccles. Diseases of Larynx: Mr. D'Arcy Power. Demonstrators of Medicine: Dr. Tooth, Dr. A. E. Garrod, and Dr. L. Brown. Demonstrator of Midwifery: Dr. Williamson. Tutor in Public Health: Dr. Warry. Biological Demonstrators: Dr. Shore, Mr. Beckton, and Mr. Wise. Bacteriology: Dr. Andrewes. Pharmacy: Dr. Calvert and Dr. H. Smith. Chemical Pathology: Dr. Garrod. Medical Registrars: Dr. Fletcher and Dr. Drysdale. Surgical Registrar: Mr. Bailey.

CHARING-CROSS HOSPITAL AND COLLEGE.—This hospital and convalescent home contain 260 beds, a certain proportion of which are set aside for the diseases of children and those special to women. Total fees, 115 guineas if paid in a single sum on entry, or 126 guineas if paid in five instalments; the sons of registered medical practitioners pay 105 guineas in one sum or 115 guineas in five sums; for Dental students, 55 guineas, or 61 guineas in two instalments. General students pay proportionately lower fees [illegible] courses of [illegible] to compete [illegible] Pereira Prizes.

Classes for the Preliminary Scientific Examination of the University of London are held at this Medical School. The fee for the whole course, which begins in October, is 15 guineas. There are also special classes for the practical work for the Department of Public Health and a course in [illegible] Climates.

[illegible]: Sir J. Fayrer, Bart., [illegible]lting Obstetric Physician: Dr. J. Watt Black. Consulting Physician for Diseases of the Skin: Dr. Sangster. Physicians: Dr. Bruce, Dr.

---

[6] The questions asked at recent examinations can be obtained post free for 2*s.* 7*d.* from Dr. Henchley, 1, London-road, Canterbury.

[1] For Scholarships see p. 693 et seq.

Abercrombie, Dr. Murray, and Dr. Mott. Physician to Out-patients: Dr. Willcocks. Assistant Physicians: Dr. Galloway, Dr. Hunter, and Dr. Bosanquet. Consulting Surgeons: Mr. R. Barwell and Mr. Bloxam. Surgeons: Mr. Morgan, C.V.O., Mr. Boyd, and Mr. Waterhouse. Surgeon to Out-Patients: Mr. Wallis. Assistant Surgeons: Mr. Gibbs and Mr. Clogg. Obstetric Physician: Dr. Amand Routh. Assistant Obstetric Physician: Dr. T. W. Eden. Physician for Diseases of the Skin: Dr. Galloway. Aural Surgeon: Mr. Waterhouse (Dean of the School). Ophthalmic Surgeon: Mr. Treacher Collins. Orthopædic Surgeon: Mr. Wallis. Throat Physician: Dr. Willcocks. Surgeon Dentist: Mr. J. F. Colyer.

Lecturers: Winter Session.—Anatomy: Dr. Christopher Addison. Applied Anatomy: Mr. James Cantlie. Bacteriology: Mr. Leathem. Biology and Comparative Anatomy: Dr. H. W. Marett Tims. Chemistry and Physics: Dr. H. Forster Morley and Mr. Percy A. E Richards. Dental Surgery: Mr. J. F. Colyer. Medicine: Dr. John Abercrombie and Dr. H. Montague Murray. Ophthalmology: Mr. E. Treacher Collins. Physiology: Mr. C. F. Myers-Ward. Practical Anæsthetics: Mr. C. Carter Braine. Practical Anatomy: Dr. Christopher Addison. Practical Hygiene: Mr. Leathem, Dr. H. Forster Morley, and Mr. Percy A. E. Richards. Practical Medicine: Dr. James Galloway and Dr. W. Hunter. Practical Midwifery: Dr. T. W. Eden. Practical Physiology: Mr. C. F. Myers-Ward. Practical Surgery: Mr. F. C. Wallis. Psychological Medicine: Dr. Percy Smith. Surgery: Mr. Stanley Boyd. Tropical Medicine: Sir Patrick Manson.

Summer Session.—Anatomy: Dr. Christopher Addison. Applied Anatomy: Mr. James Cantlie. Anæsthetics: Mr. C. Carter Braine. Dental Surgery: Mr. J. F. Colyer. Forensic Medicine: Dr. James Galloway. Materia Medica and Practical Pharmacy: Dr. F. Willcocks. Midwifery: Dr. Amand Routh. Operative Surgery: Mr. Charles Gibbs. Pathology: Dr. F. W. Mott. Pharmacology and Therapeutics: Dr. F. Willcocks. Practical Anatomy: Dr. Christopher Addison. Practical Chemistry: Dr. H. Forster Morley and Mr. Percy A. E. Richards. Practical Medicine: Dr. James Galloway and Dr. W. Hunter. Practical Physiology: Dr. B. Moore. Practical Surgery: Mr. F. C. Wallis. Public Health: Dr. H. T. Bulstrode. Toxicology: Dr. H. Forster Morley and Mr. Percy A. E. Richards. Roentgen Ray: Mr. Mackenzie Davidson.

ST. GEORGE'S HOSPITAL.—This hospital contains 350 beds, of which 205 are allotted to surgical and 145 to medical cases. One ward is set apart for Diseases peculiar to Women. Children's beds are placed in all the women's wards. Two wards are allotted to ophthalmic cases.

Students may become perpetual pupils by payment of £150 on entering or of £160 in four annual instalments.

The Winter Session commences on Oct. 1st but students can enter at any time or for any particular course. The Hospital and Medical School are situated at Hyde Park-corner and are readily accessible from all parts of London. Entrance Scholarships to the value of £250 are awarded at the commencement of each Winter Session. Prizes: The William Brown Exhibition of £100 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition of £40 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital. Students are permitted to enter the wards of the hospital at any hour. Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. A large number of house office appointments are open without fee to every perpetual student of the hospital and are made strictly in accordance with the merits of the candidates. Special attention is directed to the following paid appointments, amongst others, which are open to students after they have held house office:—Two Medical Registrarships, each at £200 per annum; Surgical Registrarship at £200; Curatorship of the Museum at £200; Assistant Curatorship at £100; Obstetric Assistantship (Resident) at £50; two Demonstratorships of Anatomy, each at £50; the post of Sensior Anæsthetist at £50; the posts (2) of Junior Anæsthetists, each at £30. Great attention is paid by members of the staff to individual teaching. A number of special courses are given in, which the requirements of university and other examinations receive careful attention. The following may be cited as examples:—(1) Elementary Bacteriology; (2) Advanced Bacteriology; (3) Clinical Pathology; (4) Systematic Pathology; (5) Histological Pathology and Morbid Anatomy; (6) Operative Surgery; (7) Public Health; and (8) Tropical Diseases. Special test examinations and classes are held by members of the staff for all examinations. The school possesses an Amalgamation Club, with well-fitted reading-, smoking-, and luncheons-rooms on the hospital premises. Students have the advantage of a well-filled library of medical and scientific books which is kept thoroughly up-to-date. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Secretary. Further information may be obtained from the Secretary of the Medical School. Dr. Arthur Latham and Mr. F. Jaffrey, Deans; Clifford Chadwick, Secretary.

Staff.—Consulting Physicians: Sir Henry Pitman, Dr. Ogle, Dr. W. H. Dickinson, and Dr. T. T. Whipham. Consulting Surgeons: Mr. Holmes, Mr. Pick, and Mr. Haward. Consulting Obstetric Physician: Dr. Barnes. Consulting Ophthalmic Surgeon: Mr. Brudenell Carter. Consulting Aural Surgeon: Sir William Dalby. Consulting Dental Surgeon: Mr. Winterbottom. Physicians: Dr. William Ewart, Sir Isambard Owen, Dr. F. G. Penrose, and Dr. H. D. Rolleston. Obstetric Physician: Dr. W. R. Dakin. Assistant Physicians: Dr. Lee Dickinson, Dr. Cyril Ogle, and Dr. A. C. Latham. Assistant Obstetric Physician: Dr. A. F. Stabb. Physician to the Skin Department: Dr. Wyndham Cottle. Physician Anæsthetist: Dr. F. Hewitt. Surgeons: Sir William Bennett, Mr. C. T. Dent, Mr. G. R. Turner, and Mr. A. M. Sheild. Ophthalmic Surgeon: Mr. W. A. Frost. Assistant Surgeons: Mr. Herbert Allingham, Mr. F. Jaffrey, and Mr. H. S. Pendlebury. Assistant Ophthalmic Surgeon: Mr. H. B. Grimsdale. Surgeon to the Orthopædic Department: Mr. F. Jaffrey. Surgeon to the Throat Department: Mr. A. M. Sheild. Aural Surgeon: Mr. W. C. Bull. Dental Surgeon: Mr. H. Albert. Assistant Dental Surgeon: Mr. N. G. Bennett.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 583 beds.

House physicians, house surgeons, assistant house physicians, and assistant house surgeons, obstetric residents, ophthalmic house surgeons, clinical assistants, clerks to anæsthetists, surgeons' and assistant surgeons' dressers, surgical and medical clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the Medical Council, according to merit and without extra payment. The house physicians, of whom there are four, hold office for six months each. The assistant house physicians, who hold office for three months, attend in the out-patient department five afternoons in the week, and see all the cases not seen by the assistant physician of the day. The house physicians have the care of the patients in the medical wards and attend to all emergencies arising in the absence of the physicians. They are provided with board and lodging in the college free of expense. The house surgeons, of whom there are four, hold office for six months each, and are provided with board and lodging in the college free of expense. The Surgical Casualty Department is in charge of two assistant house surgeons and there are four other assistant house surgeons appointed each three months. The surgeons' dressers are selected from those students who have completed their third winter session and have been most diligent in the junior appointments. They hold office for three or six months. Six are attached to each surgeon, and during their weeks of special duty they are provided with board and lodging in the hospital free of expense. The obstetric residents, four in number, are provided with board and lodging in the college free of expense. The College stands upon a site fronting the east gate of the hospital and is connected with it by a subway. The building serves as a Residential College for Students and at the same time provides accommodation for the Students' Club.

Medical and Surgical Staff.—Consulting Physicians: Sir Samuel Wilks, Bart., Dr. F. W. Pavy, Dr. P. H. Pye-Smith, and Dr. J. F. Goodhart. Consulting Surgeons: Mr. J. Birkett, Mr. Thomas Bryant, and Sir H. G. Howse. Consulting Obstetric Physician: Dr. A. L. Galabin. Consulting Physician for Mental Diseases: Dr. G. H. Savage

Consulting Aural Surgeon: Mr. W. Laidlaw Purves. Consulting Anæsthetist: Mr. Tom Bird. Physicians and Assistant Physicians: Dr. Frederick Taylor, Dr. W. Hale White, Dr. G. Newton Pitt, Sir Cooper Perry, Dr. L. E. Shaw, Dr. J. H. Bryant, Dr. J. Fawcett, Dr. A. P. Beddard. Surgeons and Assistant Surgeons: Mr. R. Clement Lucas, Mr. C. H. Golding-Bird, Mr. W. H. A. Jacobson, Mr. Charters J. Symonds, Mr. W. Arbuthnot Lane, Mr. L. A. *Dunn, Sir Alfred Fripp, C.B., C.V.O.*, and Mr. F. J. Steward. Obstetric Physicians: Dr. P. Horrocks and Mr. J. H. Targett. Assistant Obstetric Physician: Mr. G. Bellingham Smith. Ophthalmic Surgeons: Mr. C. Higgens and *Mr. W. A. Brailey. Physician in* Charge of Skin Department: Sir Cooper Perry. Physician for Mental Diseases: Dr. M. Craig. Surgeon in Charge of Throat Department: Mr. F. J. Steward. Surgeon in Charge of Aural Department: Mr. C. H. Fagge. Dental Surgeons: Mr. F. Newland Pedley, Mr. W. A. Maggs, and Mr. J. H. Badcock. Anæsthetists: Mr. G. Rowell, Dr. H. F. Lancaster, Mr. C. J. Ogle, Dr. W. S. Handley, and Mr. R. H. J. Swan. Medical Registrars and Tutors: H. S. French, M.B., B.Ch., and H. Barber, M.B. Obstetric Registrar and Tutor: Mr. H. T. Hicks. Surgical Registrar and Tutor: Mr. G. S. *Simpson. Ophthalmic Registrar* and Tutor: Mr. A. W. Ormond. Bacteriologist to the Hospital: Dr. W. H. Eyre. Warden of the College: Mr. H. L. Eason. Hon. Librarian, Wills Library: Dr. L. E. Shaw. Lying-in Charity: Mr. Targett and Mr. Bellingham Smith. Dean of the Medical School: Dr. Fawcett.

Lecturers and [illegible] Physicians and Ass[illegible] Surgeons and Ass[illegible] and Dr. Hale White. Practical Medicine: Dr. French and Mr. Barber. Surgery: Mr. Lucas and Mr. Golding-Bird. Operative Surgery: Sir Alfred Fripp and Mr. Steward. Practical Surgery: Mr. Simpson. Midwifery and Diseases of Women: Dr. Horrocks and Mr. Targett. Practical Obstetrics: Mr. Hicks. Mental Diseases: Dr. Craig. Ophthalmic Surgery: Mr. Brailey. Dental Surgery: Mr. Newland-Pedley. Aural Surgery: Mr. Fagge. Diseases of the Skin: Sir Cooper Perry. Diseases of the Throat: Mr. Steward. Electro-Therapeutics: Dr. Bryant. Anæsthetics: Mr. Rowell. Hygiene and Public Health: Dr. Sykes. Pathology: Dr. Pitt. Gordon Lecturer on Experimental Pathology: Dr. A. E. Boycott. Morbid Anatomy: Dr. Bryant and Dr. Fawcett. Morbid Histology and Bacteriology: Mr. Bellingham Smith and Dr. Eyre. Medical and Surgical Pathology Classes: Dr. Fawcett and Mr. Steward. Bacteriology: Dr. Eyre. Practical Bacteriology: Dr. Eyre. Forensic Medicine: Dr. Stevenson. Anatomy: Mr. Lane and Mr. Dunn. Practical Anatomy: Mr. Fagge, Mr. Rowlands, and Mr. P. Turner. Physiology: Dr. Pembrey. Practical Physiology: Dr. Pembrey, Dr. Spriggs, and Mr. Forsyth. Materia Medica and Therapeutics: Sir Cooper Perry. Practical Pharmacy: the Hospital Pharmacist. Chemistry: Dr. Wade. Practical Chemistry: Dr. Wade, Mr. Ryffel, and Mr. Ball. Experimental Physics: Professor Reinold, F.R.S., and Mr. Ball. Biology: Mr. Assheton, Dr. Stevens, and Mr. P. Turner. Psychology: Dr. Craig.

KING'S COLLEGE.—The hospital contains 217 beds in use. The composition fees are £135 if paid in one sum or £148 if paid in four instalments. Resident medical officers have rooms at the hospital and commons free; they are selected by examination and hold their appointment for six months or a year. There are two house physicians, two physician accoucheur assistants, and three house surgeons. Sambrooke registrarships, value £50 per annum, are tenable for two years. Clinical assistants senior and junior of the special departments—ophthalmic, ear, and throat. Senior dressers and dressers, clinical clerks, assistant demonstrators of anatomy and physiology, and prosectors are elected by examination, and in consideration of their former work in the medical school as matriculated students. Classes for the science subjects required by the University of London are held by the Professors of the Science Faculty of King's College, and students avail themselves of their laboratories.

Laboratories.—Chemistry, Physics, Physiology, Experimental Psychology, Pharmacology, Bacteriology, State Medicine, Pathology, and Neuro-pathology have special laboratories.

Athletic Club.— [illegible] the privileges of the Athletic [illegible] large recreation ground of the Col[illegible]

Staff.—Consulting Physicians: Sir A. B. Garrod, Dr. Lionel S. Beale, Dr. Alfred B. Duffin, and Dr. I. Burney Yeo. Consulting Surgeons: Lord Lister and Mr. W. Rose. Physicians: Dr. David Ferrier, Dr. Nestor Tirard, Dr. Norman Dalton, and Sir Hugh Beevor, Bart. Surgeons: Mr. W. Watson Cheyne, Mr. A. B. Barrow, Mr. A. Carless, Mr. F. F. Burghard, Mr. G. L. Cheatle, and Mr. P. T. B. Beale. Assistant Physicians: Dr. Raymond Crawfurd (Dean of the hospital for 1903–4), Dr. W. Aldren Turner and Dr. Tunnicliffe. Obstetric Physician: Dr. T. C. Hayes. Assistant Obstetric Physician: Dr. John Phillips. Assistant Physician for the Diseases of Children: Dr. George F. Still. Diseases of the Throat: Dr. Greville MacDonald. Dental Surgeon: Mr. A. S. Underwood. Assistant Dental Surgeon: Mr. C. E. Wallis. Ophthalmic Surgeon: Mr. M. M. McHardy. Assistant Ophthalmic Surgeon: Mr. L. V. Cargill. Aural Surgeon: Mr. Urban Pritchard. Assistant Aural Surgeon: Mr. Arthur H. Cheatle. Assistant Physician for Diseases of the Skin: Dr. A. Whitfield. [illegible] Norman Dalton. Physician in [illegible] ment: Dr. W. Aldren Turner. [illegible] X-ray Department: Dr. F. Harrison Low. Anæsthetist and Instructor in Anæsthetics: Dr. J. F. W. Silk. Senior Medical Registrar and Tutor: Dr. J. C. Briscoe. Senior *Surgical Registrar and Tutor: Dr. T. Percy Legg. Obstetric* Registrar and Tutor: Dr. Hugh Playfair. Sambrooke Registrars: Mr. J. M. Twentyman and Mr. A. Edmunds. Clinical Pathologist: Dr. Emery.

Lecturers.—Anatomy, Descriptive and Surgical: Dr. A. Robinson (Professor) and Dr. G. J. Jenkins (Demonstrator). Physiology, Practical Physiology, and Elementary Biology: Dr. W. D. Halliburton (Professor), Mr. P. T. B. Beale (Demonstrator of Histology), Dr. H. W. Lyle and Mr. A. Edmunds (Demonstrators of Physiology), and Dr. H. W. Lyle (Lecturer in Animal Biology). Dr. W. G. Smith (Lecturer on Experimental Psychology). Chemistry and Practical Chemistry: Dr. J. M. Thomson (Professor), Mr. Herbert Jackson (Assistant Professor), and Mr. P. H. Kirkaldy (Demonstrator). Experimental Physics: Dr. W. G. Adams (Professor) and Mr. E. F. Herroun (Demonstrator). Botany (Vegetable Biology): Dr. W. B. Bottomley (Professor), and Mr. E. J. Schwartz (Demonstrator). Medicine (Principles and Practice of): Dr. Nestor Tirard (Professor). Neuro-Pathology: Dr. D. Ferrier (Professor) and Dr. W. A. Turner (Demonstrator). Psychological Medicine: Dr. Ernest W. White (Professor) Surgery (Principles and Practice of): Mr. A. Carless (Professor). Surgery (Operative): Mr. F. F. Burghard (Tea[illegible] G. L. Cheatle (Teacher). [illegible] Dr. F. W. Tunnicliffe [illegible] and Diseases of Women [illegible] Professor). Practical Obstetrics: Dr. John Phillips (Lecturer). Diseases of Children: Dr G. F. Still (Assistant Physician). Pathology: Dr. N. Dalton (Professor). Forensic Medicine: Dr. W. R. Smith (Professor). Hygiene: Dr. W. J. R. Simpson (Professor). State Medicine Laboratory: Dr. W. R. Smith (Director) and Mr. D. Somerville (Demonstrator). Bacteriology: Dr. Hewlett (Professor). Ophthalmic Surgery: Mr M. M. McHardy (Professor). Aural Surgery: Dr. Urban Pritchard (Professor). Anæsthetics: Dr. J. F. W. Silk. Dental Surgery: Dr. A. S. Underwood (Professor). Diseases of the Skin: Dr. A. Whitfield (Assistant Physician). Dean of the School: Dr. W. D. Halliburton.

LONDON HOSPITAL AND COLLEGE.—The hospital has nearly 800 beds in constant use and no beds are closed. Being the only general hospital for East London—i.e., for a million and a half people—the practice is immense. In-patients last year 13,160; out-patients, 162,147; accidents, 22,800; major operations, 2492. Owing to the enormous number of patients *more appointments are open to students* than at any other hospital. Receiving-room officers, house physicians, house surgeons, &c.: 80 of these qualified appointments are made *annually and more than 150 dressers,* clinical clerks, &c., appointed every three months. All are free to students of the College. Holders of resident appointments have free board. Twenty-nine scholarships and prizes are given annually. Seven entrance scholarships, £120, £120, £60, £60, £35, £30, £20, are offered in September. Special classes are held for the University of London and other higher examinations. Special entries for medical and surgical practice can be made. Qualified practitioners will find excellent opportunities for studying the rarest diseases. Lectures and classes are held throughout the year to suit the requirements of candidates desirous of obtaining the Diploma in Public Health. The

Lecturer on Public Health has his offices in the College, enabling the candidates to attend daily to work under his supervision. These courses are recognised both by the Universities of Oxford, Cambridge, London, &c., and by the Examining Board in England. A reduction of 15 guineas is made from the perpetual fee to the sons of members of the profession. The new laboratories and class-rooms for Bacteriology, Public Health, Operative Surgery, Chemistry, and Biology are now in full use. The new Clubs Union Rooms, Garden, and Fives Court are now open. The Clubs Union Athletic Ground is within easy reach of the hospital. The Metropolitan and other railways have stations close to the hospital and the college.

Staff—Consulting Physicians: Dr. Hughlings Jackson and Dr. Sansom. Consulting Obstetric Physician: Dr. Herman. Consulting Surgeons: Mr. Hutchinson, Mr. Couper, Mr. McCarthy, Sir Frederick Treves, Bart., and Mr. Tay. Physicians: Sir Stephen Mackenzie, Dr. Gilbart-Smith, Dr. Francis Warner, Dr. Percy Kidd, Dr. Frederick J. Smith, Dr. W. J. Hadley, Dr. G. Schorstein, and Dr. Bertrand Dawson. Assistant Physicians: Dr. Henry Head, Dr. Robert Hutchison, and Dr. Lewis Smith. Surgeons: Mr. C. W. Mansell-Moullin, Mr. Hurry Fenwick, Mr. F. S. Eve, Mr. J. Hutchinson, jun., Mr. T. H. Openshaw, and Mr. H. P. Dean. Assistant Surgeons: Mr. P. Furnivall, Mr. H. Barnard, Mr. Rigby, and Mr. Sherren. Obstetric Physician: Dr. Lewers. Assistant Obstetric Physician: Dr. Andrews. Physician to the Skin Department: Sir Stephen Mackenzie. Assistant Physician to the Skin Department: Dr. Sequeira. Consulting Dental Surgeon: Mr. Barrett. Consulting Anæsthetist: Dr. Hewitt. Ophthalmic Surgeon: Mr. A. B. Roxburgh. Surgeon to the Throat Department: Dr. Lambert Lack. Aural Surgeon: Mr. Hunter Tod. Medical Officer in charge of the Electrical Department: Dr. E. R Morton. Physician in charge of the Photo-therapy Department: Dr. Sequeira. Analyst to the Hospital: Mr. Hugh Candy. Bacteriologist to the Hospital: Dr. W. Bulloch. Dental Surgeons: Mr. Dolamore and Mr. Farmer. Anæsthetists: Dr. Probyn-Williams, Mr. Hilliard, and Mr. Clapham.

Lecturers—Medicine: Dr. Percy Kidd and Dr. F. J. Smith. Clinical Medicine: the Physicians and Assistant Physicians. Surgery: Mr. C. W. Mansell-Moullin. Clinical Surgery: the Surgeons and Assistant Surgeons. Anatomy: Dr. A. Keith. Physiology: Dr. Leonard Hill, Dr. Wall, and Dr. Ham. Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Pathology—(1) Medical: Dr. W. J. Hadley; (2) General and (3) Surgical: Dr. W. Bulloch. Midwifery and Diseases of Women: Dr. Lewers. Clinical Obstetrics: The Obstetric Physicians. Practical Obstetrics: Dr. Arthur H. N. Lewers, and Dr. Andrews. Forensic Medicine—(1) Public Health: Dr. J. C. Thresh; and (2) Medical Jurisprudence and Toxicology: Dr. Fredk. J. Smith. Public Health and Sanitary Science: Dr. W. Bulloch, Dr. John C. Thresh, and Mr. F. J. M. Page. Mental Diseases: Dr. J. Kennedy Will. Materia Medica and General Therapeutics: Dr. Francis Warner and Dr. Lewis Smith. Biology: Mr. G. P. Mudge. Experimental Physics: Mr. F. J. M. Page and Mr. Hugh Candy. Ophthalmic Surgery: Mr. A. B. Roxburgh. Diseases of the Throat: Dr. Lambert Lack. Aural Surgery: Mr. Hunter Tod. Anatomy and Pathology of the Teeth: Mr. H. Dolamore and Mr. F. M. Farmer. Practical Anatomy: Dr. Arthur Keith, Mr. J. Sherren and Mr. Howard. Practical Physiology and Histology: Dr. Leonard Hill, Dr. Wall, and Dr. Ham. Foods and Dietetics: Dr. R. Hutchison. Practical Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Operative Surgery: Mr. H. P. Dean. Demonstrators of Morbid Anatomy: Dr. F. J. Smith, Dr. W. J. H. Hadley, Dr. Dawson, and Dr. Lewis Smith. Bacteriology: Dr. W. Bulloch and Mr. Twort. Pathological Histology: Dr. W. Bulloch. Therapeutic Electricity and Radiography: Dr. A. E. Morton. Anæsthetics: Dr. R. J. Probyn-Williams. Elementary Clinical Medicine: Mr. Henry Head and Dr. Robert Hutchison. Medical Tutor: Dr. Wall. Surgical Tutor: Mr. H. L. Barnard. Obstetric Tutor: Dr. H. R. Andrews. As Emeritus Professor of Surgery Mr. Hutchinson will give in the Summer Session, and Sir Frederick Treves, Bart., will give in the Winter Session a course of lectures in Clinical Surgery. The special subjects and the dates will be announced in due course. Dr. Hewitt, as Emeritus Lecturer on Anæsthetics, will give a course of lectures during the first half of the Winter Session. Warden: Mr. Munro Scott.

St. Mary's Hospital.—The hospital contains 281 beds, which number will be raised to 362 on completion of the Clarence wing in 1904. The situation of the hospital in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it especially convenient to students who wish to reside in the immediate vicinity, and a register of approved lodgings is kept in the office or the Medical School. All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination. Six house physicians, six house surgeons, four obstetric officers, and two resident anæsthetists are appointed in each year and receive board and residence in the hospital. Entrance scholarships in Natural Science, one of £145, two of £78 15*s.*, one of £52 10*s.*, and two of £63 (for University students), are awarded annually by examination in September.

The New Wing.—The new wing, the ground floor of which, comprising the new out-patient department, was opened in 1898, will be completed in 1904. This will add to the hospital 81 new beds and will include additional operating theatres, a new clinical laboratory, a clinical theatre, and an x-ray department.

The Laboratories.—During the present year important alterations and improvements have been made in the Chemical and Physiological Laboratories. In the Pathological Department a large and newly equipped laboratory has been opened for study and research in bacteriology, and the Post-mortem Room has been entirely reconstructed. The Pathological Museum has also been extended in order to make provision for the large additions made to the collection of "Kaiserling" specimens.

Special Tuition.—In addition to systematic courses of lectures and demonstrations special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford, Cambridge, and London without additional fees.

Preliminary Scientific Course.—Special classes, including lectures and laboratory work, are held throughout the year.

The composition fee for full students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 60 guineas (£63) paid in one sum or by payment of two annual instalments of 35 guineas (£36 15*s.*) and 30 guineas (£31 10*s.*) respectively. University students who have not completed their examination in Anatomy and Physiology pay an annual fee of 25 guineas (£26 5*s.*) until they have passed these examinations, and then pay the composition fee. Separate courses of lectures, laboratory work, or hospital practice may be taken. The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

Staff.—Consulting Physicians: Sir Edward Sieveking and Sir William Broadbent. Consulting Surgeons: Mr. A. T. Norton, Mr. Edmund Owen, Mr. G. P. Field (Aural), Mr. Howard-Hayward (Dental), Sir G. Anderson Critchett (Ophthalmic), and Mr. Malcolm Morris (Skin). Physicians: Dr. W. B. Cheadle, Dr. D. B. Lees, and Dr. Sidney Phillips. Surgeons: Mr. Herbert W. Page, Mr. A. J. Pepper, and Mr. A. Q. Silcock. Physicians in charge of Out-Patients: Dr. R. Maguire, Dr. A. P. Luff, and Dr. H. A. Caley. Surgeons in charge of Out-Patients: Mr. J. Ernest Lane, Mr. H. Stansfield Collier, and Mr. V. Warren Low. Physician-Accoucheur: Dr. Montagu Handfield-Jones. Physician-Accoucheur in charge of Out-Patients: Dr. W. J. Gow. Physician in charge of Children's Department: Dr. Sidney Phillips. Ophthalmic Surgeon: Mr. H. E. Juler. Assistant Ophthalmic Surgeon: Mr. Leslie Paton. Physician to the Skin Department: Dr. Graham Little. Dental Surgeon: Mr. Morton Smale. Aural Surgeon: Dr. G. William Hill. Surgeon to the Throat Department: Dr. Scanes Spicer. Administrator of Anæsthetics: Mr. Henry Davis.

Lecturers.—Clinical Medicine: Dr. W. B. Cheadle and Dr. D. B. Lees. Clinical Surgery: Mr. Herbert W. Page. Medicine: Dr. Sidney Phillips. Surgery: Mr. A. J. Pepper and Mr. A. Q. Silcock. Practical and Operative Surgery: Mr. H. Stansfield Collier and Mr. V. W. Low. Pathology: Dr. A. E. Wright. Bacteriology: Dr. A. E. Wright. Pathological Chemistry: Dr. W. H.

Willcox. Midwifery and Gynæcology: Dr. M. Handfield-Jones. Materia Medica and Therapeutics: Dr. H. A. Caley (Dean). Forensic Medicine: Dr. A. P. Luff. Descriptive and Surgical Anatomy: Mr. J. Ernest Lane. Physiology and Histology: Mr. W. Legge Symes (Acting Lecturer). Demonstrators: Mr. B. H. Spilsbury and Mr. E. L. Ash. Biology: Dr. W. G. Ridewood. Demonstrator: Mr. T. G. Hill. Chemistry and Physics: Dr. W. H. Willcox and Mr. E. H. Strange. Hygiene and Public Health: Dr. W. H. Willcox. Mental Diseases: Dr. Theo. B. Hyslop. Diseases of the Eye: Mr. Leslie Paton. Diseases of the Ear: Dr. G. William Hill. Diseases of the Skin: Dr. Graham Little. Diseases of the Throat: Dr. Scanes Spicer. Dental Surgery: Mr. Morton Smale. Tropical Diseases: Dr. John Anderson. Anæsthetist: Mr. Henry Davis. Medical Tutor: Dr. F. H. Poynton. Surgical Tutor: Mr. H. Stansfield Collier. Obstetric Tutor: Dr. T. G. Stevens. Medical Registrar: Dr. C. F. Coombs. Surgical Registrar: Mr. W. H. Clayton-Greene. Electrical Department: Dr. W. J. Harris. Curator of the Museum: Dr. J. F. H. Broadbent Anatomy: Mr. W. Ashdowne (senior demonstrator), and Mr. Maynard Smith (junior demonstrator). Practical Pharmacy: Mr. E. A. Andrews (demonstrator). School Secretary: Mr. B. E. Matthews.

MIDDLESEX HOSPITAL.—The hospital contains 340 beds. There is a special wing for patients suffering from cancer, consisting of four wards, containing 40 beds; here cancer patients are received and attended for a period limited only by the duration of their disease.

Hospital Appointments.—All hospital appointments are allotted to students without any extra fee. Eighteen Resident Appointments are annually filled from the pupils of the hospital, each appointment extending over six months.

Special Classes are held to prepare students for the Inter. M.B. (Lond.) Examination and for the Primary Examination for the diploma of F.R.C.S. Eng.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the examinations in Medicine and Surgery in the United Kingdom and for the diploma in Public Health; and ample laboratory and class-room accommodation is provided for the teaching of the various subjects of the curriculum and for original research in Medicine, Pathology, or Bacteriology.

A Residential College to accommodate about 30 students adjoins the hospital. The charge for residence is £8 8*s*., £7 7*s*., and £6 6*s*. per term, according to the position of the room. Breakfast, luncheon, and dinner are supplied in the College Hall at a very moderate charge.

Fees.—The Composition Fee for the entire curriculum is 135 guineas, or 145 guineas if paid in three instalments. The fee for the Dental Curriculum is 54 guineas, or *60 guineas if paid in two instalments. Students who have* completed the study of Anatomy and Physiology or passed the London Preliminary Scientific M.B. Examination are received on special terms.

Staff.—Consulting Physicians: Dr. W. Caley, Dr. Sydney Coupland, and Sir Richard Douglas Powell. Physicians: Dr. J. K. Fowler, Dr. W. Pasteur, and Dr. W. E. Wynter. Obstetric Physician: Dr. W. Duncan. Physician to Out-patients: Dr. A. F. Voelcker. Assistant Physicians: Dr. F. J. Wethered, Dr. H. Campbell Thomson, and Dr. R. A. Young. Consulting Physician to the Skin Department: Dr. R. Liveing. Physician to the Skin Department: Dr. J. J. Pringle. Assistant Obstetric Physician: Dr. Comyns Berkeley. Consulting Surgeons: Mr. Nunn and Mr. G. Lawson. Surgeons: Mr. Morris, Mr. Clark, and Mr. Gould Surgeons to Out-patients: Mr. Bland-Sutton and Mr Murray (Dean of the school). Assistant Surgeon: Mr. Kellock.
[illegible] on: Mr. S.
[illegible] r. Dental
[illegible] geon: Mr.
[illegible] Dr. R. A.
[illegible] Baldwin,
and Dr. Victor Bonney. Resident Medical Officer: Mr. E A. Fardon. Chloroformists: Mr. Norton, Mr. T. G. A. Burns, and Mr. H. P. Noble.

Lecturers.—Winter Session: Anatomy: Dr. Thompson. Demonstrator: Dr. Gladstone. Biology and Physiology: Mr. Goodall. Chemistry: Dr. Kellas. Demonstrator: Mr. Macaulay. Medicine: Dr. Pasteur and Dr. Wynter. Practical Medicine: Dr. Voelcker. Surgery: Mr. Clark and Mr. Pearce Gould. Practical Surgery: Mr. Murray. Operative Surgery: Mr. Murray. Practical Midwifery: Dr. Berkeley. Clinical Lectures in Medicine: The Physicians. Clinical Lectures in Surgery: The Surgeons. Clinical Lectures on Diseases of the Ear, Throat, and Nose: Mr. S. Paget. Lectures in Ophthalmology: Mr. Lang. Lectures in Dental Surgery: Mr. Hern. Public Health and Bacteriology: Mr. Foulerton. Summer Session: Pharmacology and Therapeutics: Dr. R. A. Young. Midwifery: Dr. Comyns Berkeley. Pathology and Pathological Histology: Dr. Voelcker. Forensic Medicine and Toxicology: Dr. Wethered. Practical Toxicology: Dr. Kellas. Tropical Medicine: Dr. Crombie. Mental Diseases: Dr. Mickle. Lectures in Dermatology: Dr. Pringle. Anatomy, Chemistry, and Physiology: as in Winter Session. Tutors—Medicine: Dr. Campbell Thomson; Surgery: Mr. Kellock; Obstetrics: Dr. Victor Bonney; Practical Pharmacy: Mr. Fardon.

ST. THOMAS'S HOSPITAL.—The annual composition fee is 30 guineas—in addition to a fee on entrance. Qualified practitioners are admitted by a joint ticket to the practice of 16 hospitals on terms which may be ascertained from the medical secretary.

Staff.—Consulting Physicians: Dr. Harley and Dr. Payne. Consulting Surgeons: Sir J. Simon, Mr. S. Jones, and Mr. J. Croft. Consulting Obstetrical Physician: Dr. Gervis. Consulting Ophthalmic Surgeons: Mr. Liebreich and Mr. Nettleship Physicians: Dr. Sharkey, Dr. Acland, Dr. Hawkins, and Dr. Mackenzie. Surgeons: Mr. Clutton, Mr. Pitts, Mr. G. H. Makins, C.B., and Mr. Battle. Assistant Physicians: Dr. Turney (Dean of the school), Dr. Perkins, Dr. Colman, and Dr. Box. Assistant Surgeons: Mr. C. A. Ballance, Mr. H. B. Robinson, Mr. F. C. Abbott, and Mr. C. S. Wallace. Obstetrical Physicians: Dr. Cullingworth and Dr. Tate. Assistant Obstetrical Physician: Dr. Fairbairn. Ophthalmic Surgeon: Mr. Lawford. Assistant Ophthalmic Surgeon: Mr. Fisher. Physician for Diseases of Children: Dr. Box. Surgeon for Diseases of the Throat: Mr. H. B. Robinson. Surgeon for Diseases of the Skin: Mr. E. Stainer. Surgeon for Diseases of the Ear: Mr. Abbott. Physician Electrical Department: Dr. Turney. Surgeon Dentist: Mr. C. E. Truman. Resident Assistant Physician: Dr. H. D. Singer. Resident Assistant Surgeon: Mr. P. W. G. Sargent. Anæsthetists: Mr. W. Tyrrell, Mr. E. H. G. Morris, Mr. H. Low, and Mr. H. C. Crouch. Pharmaceutist: Mr. E. White. Curator of Museum: Mr. S. G. Shattock. Assistant Pathologist: Dr. C. Powell White. Superintendent of Clinical Laboratory: Mr. Dudgeon. Superintendent of X-ray Department: Dr. Greg.

Lecturers: Winter Session.—Practical Anatomy Demonstrators: Mr. F. G. Parsons, Dr. Box, and Mr. Corner. Descriptive and Surgical Anatomy: Mr. F. G. Parsons. Chemistry and Chemical Physics: Dr. Crossley. Physiology and General Anatomy: Dr. J. B. Leathes. *Elementary Biology:* Mr. F. G. Parsons Pathology and Bacteriology: Dr Turney, Dr. Perkins, and Mr. Shattock. Surgery: Mr. Makins and Mr. Ballance. Theory and Practice of Medicine: Dr. Sharkey and Dr. Hawkins. Practical and Manipulative Surgery: Mr. Robinson and Mr. Abbott. Physics and Natural Philosophy: Dr. Le Sœuer. Clinical Medicine: The Physicians. Surgery: The Surgeons in rotation. Clinical Midwifery and Diseases of Women: Dr. Cullingworth and Dr. Tate. Diseases of the Eye: Mr. Lawford. Pharmacology and Therapeutics: Dr. Mackenzie. Clinical Lectures on Throat Disease: Mr. H. B. Robinson. Demonstrator in Morbid Histology: Dr. C. Powell White. Physiological Demonstrator: Dr. Russell. Obstetrical Demonstrators: Dr. Fairbairn and Dr. Bell. Elementary Clinical Medicine: Dr. Colman, Dr. Perkins, and Dr. Box. Surgical Classes: Mr. Abbott, Mr. Wallace, Mr. Fisher, and Mr. Shattock.

Summer Session.—Anatomical Demonstrators: Mr. F. G. Parsons, Dr. Box, and Mr Corner. Elementary Biology: Mr. F. G. Parsons. Forensic Medicine and Toxicology: Dr. Colman. Midwifery: Dr. Tate. Botany: Mr. Drabble. Chemistry and Practical Chemistry: Dr. Crossley. Mental Diseases: Dr. H. Rayner. Public Health: Dr. E. Seaton.
[illegible] ery: Mr. Robinson and Mr.
[illegible] Dr. J. B. Leathes. Com-
[illegible] Diseases of the Eye: Mr.
[illegible] teriology: Dr. Turney, Dr.
[illegible] rative Surgery: Mr. Battle,
Mr. Robinson, and Mr. Abbott. Lectures on Clinical Medicine and Surgery are delivered every Wednesday and

Thursday. Special Departments for the Diseases of Women and Children, and for Diseases of the Eye, Skin, Throat, and Ear. Instruction in Electro-Therapeutics by Dr. Turney. Instruction in Dental Surgery by Mr. Truman. Instruction in Vaccination by Dr. Cope.

UNIVERSITY COLLEGE, LONDON.—*Composition fees.*—1 For the entire medical education required by the Examining Board in England and the Society of Apothecaries, 150 guineas if paid in one sum at the commencement of the course; 155 guineas if paid by instalments, as follows—first year, 70 guineas; second year, 55 guineas; third year, 30 guineas. 2. For those students who do not require to attend Chemistry, Pharmacy, and Elementary Biology at a medical school (under the regulations of the Examining Board in England) the fee will be—135 guineas if paid in one sum; 140 guineas if paid by instalments, as follows—first year, 60 guineas; second year, 50 guineas; third year, 30 guineas. 3. For the whole course of instruction for the Intermediate Examination in Medicine of the University of London, 60 guineas if paid in one sum; 62 guineas if paid by instalments, as follows—first year, 37 guineas; second year, 25 guineas. 4. For the course of instruction for the Final M.B. Examination of the University of London, 80 guineas if paid in one sum; 82 guineas if paid by instalments, as follows—first year, 50 guineas; second year, 32 guineas. 5. Composition fee for Dental Students, 65 guineas, or exclusive of Chemistry, Practical Chemistry, Physics, and Materia Medica, 50 guineas. 6. Composition fee for the whole course of instruction for the Preliminary Scientific (M B.) Examination of the University of London, 25 guineas.

Eight house physicians, six house surgeons, four senior and eight junior obstetric assistants, and two ophthalmic assistants are selected annually by examination from among the senior students. The house physicians and house surgeons reside in the hospital for a period of six months, and the senior obstetric assistants for three months, receiving free board and lodging.

Several gentlemen connected with the College receive students to reside with them. A register of boarding residences is kept in the office of the College for the convenience of students; the residences are not under the control of the College authorities.

Staff.—Consulting Physicians: Dr. S. Ringer, Dr. H. C. Bastian, Sir W. R. Gowers, Sir J. Williams, and Dr. G. Vivian Poore. Physicians: Dr. F. T. Roberts, Sir Thomas Barlow, Bart., Dr. J. R. Bradford, and Dr. S. H. C. Martin. Assistant Physicians: Dr. J. R. Russell, Dr. H. Batty Shaw, and Dr. F. J. Poynton. Obstetric Physician: Dr. H. R. Spencer. Assistant Obstetric Physician: Dr. G. F. Blacker. Physician, Skin Department: Dr. H. R. Crocker. Consulting Surgeons: Sir Henry Thompson, Mr. C. Heath, and Mr. S. J. Hutchinson (Dental). Surgeons: Mr. A. E. Barker, Mr. R. J. Codlee, Sir Victor Horsley, Mr. B. Pollard, and Mr. Raymond Johnson. Assistant Surgeon: Mr. T. R. H. Bucknall. Ophthalmic Surgeon: Mr. J. Tweedy. Assistant Ophthalmic Surgeon: Mr. P. Flemming. Dental Surgery: Mr. S. Spokes. Anæsthetist: Dr. D. Buxton. Assistant Anæsthetist: Dr. H. J. Scharlieb, C.M.G. Surgeon Registrar: Mr. W. B. L. Trotter. Resident Medical Officer: Dr. S. H. Brown. Pathologist: Dr. F. H. Thiele. Radiographer: Mr. E. S. Worrall.

Lectures of the Faculty of Medicine: Winter Session.—Anatomy: Professor G. D. Thane. Dissections by Mr. G. B. M. White, Mr. P. M. Heath, Mr. G. A. Herklots, and Mr. G. M. W. Hodges. Chemistry: Professor Sir William Ramsay and Professor J. Norman Collie. Biology: Professor E. A. Minchin. Principles and Practice of Medicine: Professor J. Rose Bradford. Principles and Practice of Surgery: Professor A. E. Barker. Practical and Operative Surgery: Mr. B. Pollard, Mr. T. R. H. Bucknall, and Mr. R. Johnson. Physiology: Professor E. H. Starling. Dental Surgery: Mr. S. Spokes. Morbid Anatomy and Bacteriology: Professor S. Martin.

Summer Session.—Pathological Anatomy: Professor S. Martin. Practical Chemistry: Professor Sir William Ramsay and Professor J. Norman Collie. Midwifery and Diseases of Women: Professor H. R. Spencer. Medical Jurisprudence: Professor J. S. R. Russell. Pharmacology: (vacant). Therapeutics: (vacant). Ophthalmic Medicine and Surgery: Professor J. Tweedy. Operative Surgery: Mr. Bilton Pollard. Hygiene and Public Health: (vacant). Practical Physiology and Histology: Professor E. H. Starling. Mental Physiology: Dr. W. J. Mickle. Principal of the College: G. Carey Foster, LL.D., D.Sc, F.R.S. Secretary of the College: T. Gregory Foster, Ph.D.

WESTMINSTER HOSPITAL.—The hospital contains upwards of 200 beds. There are separate departments for Diseases of the Eye, Ear, Skin, Teeth, and Throat, for Orthopædics, and for Diseases of Women, and a special ward for Children. The Anatomical Museum is open to the students. There are also Pathological and Materia Medica Museums.

A medical and a surgical registrar, each with a salary of £40, are appointed annually. Two house physicians, two house surgeons, and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons; also two assistant house surgeons with commons only. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students of the hospital.

Preliminary Scientific.—Special classes are held in the subjects of this examination—Chemistry, Dr. Hake; Physics, Mr. Somerville; Biology, Dr. Sherlock. The extra fee to a general student is 12 guineas.

Intermediate M.B.—Advanced Physiology and Histology, Mr. Arthur Evans. Materia Medica, Dr. Purves Stewart.

D.P.H.—The course of Laboratory Instruction may now be taken. Physics Mr. Somerville; Chemistry, Dr. Hake; Bacteriology, Dr. Blaxall. Fee: 12 guineas for three months, 20 guineas for six months.

Bacteriology.—A course in General Bacteriology is given by Dr. Blaxall Fee £5 5*s.*

Staff.—Consulting Medical Staff: Dr. H. B. Donkin. Consulting Surgical Staff: Mr. Richard Davy, Mr. G. Cowell, and Mr. N. C. Macnamara. Consulting Dental Surgeon: Dr. J. Walker. Medical In-patient Staff: Dr. W. H. Allchin, Dr. de Havilland Hall, and Dr. W. Murrell. Obstetric Physician: Dr. W. Rivers Pollock. Surgical In-patient Staff: Mr. C. Stonham, Mr. W. G. Spencer, and Mr. A. H. Tubby. Medical Out-patient Staff: Dr. R. G. Hebb, Dr. W. A. Wills, Dr. A M. Gossage, and Dr. Purves Stewart. Physician for Diseases of the Skin: Dr. T. Colcott Fox. Assistant Obstetric Physician: Dr. G. H. Drummond Robinson. Surgical Out-patient Staff: Mr. W. Turner, Mr. E. P. Paton, and Mr. Arthur Evans. Surgeon in charge of the Throat Department: Mr. P. R. W. De Santi. Ophthalmic Surgeon: Mr. G. Hartridge. Surgeon in charge of the Orthopædic Department: Mr. A. H. Tubby. Surgeon in charge of the Ear Department: Mr. P. R. W. De Santi. Dental Surgeons: Mr. C. W. Glassington and Mr. E. Gardner. Administrator of Anæsthetics: Dr. N. W. Bourns. Pathologist and Curator of Museum: Dr. W. S. Lazarus-Barlow. Assistant Pathologist and Curator of Museum: Dr. H. E. Hewitt. Medical Registrar: Dr. A. E. Carver. Surgical Registrar: Mr. V. B. Orr. Pharmacist: Mr. A. E. Tanner. Secretary: Mr. S. M. Quennell.

Lectures.—Clinical Medicine: Dr. Allchin, Dr. Hall, and Dr. Murrell. Clinical Surgery: Mr. Stonham, Mr. Spencer, and Mr. Tubby. Clinical Gynæcology: Dr. Pollock (Treasurer of the school). Medicine: Dr. Murrell and Dr. Hebb. Diseases of the Skin: Dr. Colcott Fox. Insanity: Dr. Charles Mercier. Surgery: Mr. Stonham. Ophthalmic Surgery: Mr. Hartridge. Surgery of the Throat and Nose: Mr. De Santi. Orthopædic Surgery: Mr. Tubby. Aural Surgery: Mr. De Santi. Dental Surgery: Mr. Glassington. Anæsthetics: Dr. Bourns. Operative Surgery: Mr. Stonham. Surgical Anatomy: Mr. Paton. Minor Surgery: Mr. Turner. Surgical Pathology; Mr. Paton. General Midwifery and Diseases of Women: Dr. Pollock. General Pathology and Morbid Anatomy: Dr. Lazarus-Barlow. Post-mortem Demonstrations: Dr. Lazarus-Barlow. Materia Medica, Therapeutics, and Pharmacology: Dr. Purves Stewart. Demonstrator of Practical Pharmacy: Mr. A. E. Tanner. Forensic Medicine: Dr. Wills and Dr. Drummond Robinson. Toxicology: Dr. H. Wilson Hake. Public Health: Dr. S. Monckton Copeman. Bacteriology: Dr. Blaxall. Anatomy: Mr. Black. Demonstrators of Practical Anatomy: Mr. Black, Mr. Paton, and Mr. Arthur Evans. Physiology: Dr. Gossage (Dean of the school). Practical Physiology: Dr. Gossage. Demonstrator of Physiology: Mr. Evans. Histology: Dr. Abrahams. Biology and Comparative Anatomy: Dr. Sherlock. Emeritus

Lecturer on Chemistry: Dr. Dupré. Chemistry and Practical Chemistry: Dr. H. Wilson Hake. Physics: Mr. H. Somerville. Secretary and Librarian: Mr. W. Fryer.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8 Hunter-street, Brunswick-square, W.C.—The fee for the whole medical course, including Elementary Science, is £135 in one sum, or £145 in four instalments. The fee for the medical course for the University of London, after the completion of the Preliminary Scientific year, is £125 in one sum, or £135 in four instalments. This entitles students to attend all necessary lectures and practical classes as well as the medical and surgical practice of the hospital, and to hold clerkships and dresserships in the in-patient and out-patient departments. Students can also attend the in-patient and out-patient practice of the New Hospital for Women. Students after qualification can hold at the Royal Free Hospital the posts of house physician, house surgeon, clinical assistants, anæsthetist and assistant anæsthetists, medical and surgical registrars, medical electrician, and museum curator; and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Chemistry, and museum curator. They can also hold posts at the New Hospital for Women, which is officered entirely by medical women.

In addition to the list of Scholarships tabulated in another column three Evans Prizes of £3 3*s*., £2 2*s*., and £1 1*s*. are given in alternate years on the results of the class examination in midwifery, and two Durham Prizes, value £5 and £3, are given in alternate years on the results of the class examination in gynæcology, and a prize of £5 is awarded in alternate years on the results of the class examination in Midwifery and Gynæcology respectively. The Evans Prize for Operative Midwifery, value £5 5*s*., is awarded yearly. Prizes of £10 each are awarded yearly in Anatomy and Physiology. There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help. Honoraria from the Royce Memorial Fund are given to the assistant anæsthetists at the Royal Free Hospital. Prizes and Certificates of Honour are awarded in each class at the end of the session.

Special classes for the Preliminary Scientific examination of the University of London are held. The fee for the whole course is £30. Special courses of instruction in Anatomy, Physiology, and Practical Pharmacology are provided for students preparing for the Intermediate M.B. Examination of the University of London. The rebuilding of the School is now completed and the new buildings afford every facility for efficiency of teaching and of practical work in all departments.

Staff.—Consulting Physicians: Dr. S. West and Dr. T. Crawfurd Hayes. Physicians: Dr. Harrington Sainsbury, Dr. J. W. Carr, and Dr. R. H. P. Crawfurd. Assistant Physicians: Dr. A. G. Phear and Dr. Farquhar Buzzard. Consulting Surgeons: Mr. T. H. Wakley, Mr. W. Rose, and Mr. F. J. Gant. Surgeons: Mr. A. B. Barrow, Mr. J. Berry, Mr. E. W. Roughton, and Mr. W. H. Evans. Assistant Surgeon: Mr. T. Percy Legg. Physician for Diseases of Women: Mrs. Scharlieb, M.S., M D. Assistant Physician for the Diseases of Women: Miss Vaughan, M D. Ophthalmic Surgeon: Mr. H Work Dodd. Surgeon for Diseases of Throat, Nose, and Ear: Mr. E. W. Roughton. Surgeon for Diseases of Skin: Mr. W. H. Evans. Senior Resident Medical Officer: Mr. Joseph Cunning. Registrars: Miss Murrell, M B., and Mrs. Willey, M.B. Dentist: Mr. F. Todd. Anæsthetist: Miss Aldrich-Blake, M.D. Secretary: Mr. C. W. Thies.

Lecturers.—At the school: Anatomy and Practical Anatomy: Mr. Stanley Boyd *Physiology* and *Practical Physiology:* Dr. Brodie Chemistry: Miss C. de B. Evans, D Sc. Practical Chemistry: Miss Lucy Boole. Physics: Miss E. Stoney. Biology: Mr. Mudge. Materia Medica: Dr. R. H. P. Crawfurd. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: Mrs. Scharlieb, M.D. Gynæcology: Mrs. Stanley Boyd. Forensic Medicine: Dr. Hawthorne. Toxicology: Dr. Wilson Hake. Practice of Surgery: Mr. Berry. Operative Surgery: Mr. S Boyd. Ophthalmic Surgery: Miss Ellaby. Pathology: Dr. F. W. Andrewes. Mental Pathology: Dr. Mercier. Tropical Diseases: Sir Patrick Manson. Operative Midwifery: Miss McCall, M.D. Demonstrator of Practical Toxicology, Mr. Bodmer; of Practical Gynæcology, Miss Aldrich-Blake, M.S., and Miss Vaughan, M.D.; of Anatomy, Miss Stoney, M.D., and Miss Hamilton, M.B.; of Chemistry, Miss Widdows, B.Sc.; *of Physiology, Miss Cullis; of Practical* Pharmacology, Mrs. Clarke Keer. At the Royal Free Hospital; Clinical Medicine: Dr. Sainsbury. Clinical Surgery: Mr. Barrow and Mr. Berry. Pathology: Dr. Phear. Bacteriology: Mr. Roughton Crawfurd. Surgical Tutors: Mr. Roughton, Mr. W. Evans, and Mr. Legg. Medical Tutor: Dr. Crawfurd. Demonstrator of Auscultation: Dr. Phear. Demonstrator of Practical Clinical Medicine: Miss Woodcock, M.B. Practical Pathology: Miss Ivens, M.B.

The Dean of the School is Miss Cock, M.D.; the Honorary Secretary is Mrs Thorne; and the Secretary is Miss Douie, M B.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

BETHLEM ROYAL HOSPITAL.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They will be permitted to reside in the hospital for a term generally not exceeding six months, commencing June 1st and 1st Dec., and will be provided with apartments, complete board, attendance, washing, and an honorarium of 25 guineas per quarter. They will be under the direction of the Resident Physician, and will be elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners may attend for a period of three months on payment of a fee. Lectures are also given in connexion with the London Post graduate Course.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton (318 beds).—Four House Physicians reside in the hospital for a period of six months. Pupils are admitted to the practice of the hospital: terms, £1 1*s*. for one month; three months, £2 2*s*.; perpetual, £5 5*s*. Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will commence in October. Clinical Assistants are appointed to the Assistant Physician in the out-patient department and Clinical Clerks to the Physician in the wards. The hospital has been recognised by the Conjoint Board for England as a [illegible]

and the Army and Navy and Indian Medical Boards. The hospital contains 321 beds in the two buildings.

Staff.—Consulting Physicians: Dr. J. E. Pollock, Dr. E. S Thompson, Sir Richard Douglas Powell, Dr. F. T. Roberts, Dr. J. Tatham, Dr. C. T. Williams, Dr. J. M. Bruce, and Dr T. H. Green. Physicians: Dr. J. K. Fowler, Dr. P. Kidd, Dr. T. D Acland, Dr. R. Maguire, Dr. H. W. G. Mackenzie, and Dr S H. Habershon. Assistant Physicians: Dr G Schorstein, Dr. F. J. Wethered, Dr. P. Horton-Smith, Dr. J. J. Perkins, Dr. A. Latham, and Dr. H. Batty Shaw. Consulting Surgeons: Lord Lister and Mr. R. J. Godlee. Surgeon: Mr. S Boyd. Dental Surgeon: Mr. W. Rushton. Resident Medical Officer: Dr. M. S Paterson.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park.—During the past year 1308 in-patients have been treated in the wards, and the large number of 35,835 cases since the opening of the wards in 1855. The number of out-patients treated during 1902 was 17,124, and 659,912 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on [illegible] Dr. E. Clifford Beale, the Secretary of the

[illegible] J. C. Thorowgood and [illegible] rgeon: Lord Lister. Physicians: Dr. G. A. Heron, Dr. Vincent D. Harris, Dr. E. Clifford Beale, Dr. Harrington Sainsbury, Dr. T. Glover Lyon, and Sir Hugh Beevor, Bart. Surgeon: Mr. J. F. C. H. Macready, F.R C.S Physicians to Out-Patients: Dr. W. J. Hadley, Dr. E. H. Colbeck, Dr. Arnold Chaplin, Dr. Hugh Walsham, Dr. Oliver K. Williamson, and Dr. E. J. Spriggs. Secretary: Henry T. Dudley Ryder. Secretary of the Medical Committee: Dr. Oliver K. Williamson.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—The hospital contains accommodation for 17 in-patients and has a very extensive out-patient department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. During the past year 9520 out-patients (involving over 50,000 attendances) and 339 in-patients were treated Fee for three months' attendance, 3 guineas; for six months, 5 guineas. The post-graduate teaching consists of successive series of 12 practical demonstrations by the members of the staff delivered twice weekly during the winter and summer sessions. They are so arranged that practitioners joining at any part of the course are enabled to complete the group of subjects. The fee for each course is one guinea, or with daily attendance at the out-patient department during the period of the course two guineas. Details of subjects, &c., will be afforded by the Dean. Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages. Operation days: inpatients, Tuesday, at 2 P.M.; out-patients, Tuesday, at 3.30 P.M., and Friday, at 2 P.M. Consulting Surgeon: Mr. Thomas Nunn. Surgeons: Dr. Arthur Orwin, Dr. Dundas Grant, and Dr. Percy Jakins. Physician and Pathologist: Dr. Wyatt Wingrave. Assistant Surgeons: Dr. Holloway, Mr. Nourse, and Dr. Abercrombie. Bacteriologist: Mr. St. George Reid. Dental Surgeon: Mr. George Wallis. Anæsthetist: Mr. W. Hotten George. Defects of Speech: Mr. William Van Praagh. In addition the following appointments are open to qualified members of the profession:—Assistant Registrar, tenable for twelve months; and twelve Clinical Assistants, tenable for six months. Secretary: Mr Richard Kershaw.

LONDON THROAT HOSPITAL, 204, Great Portland-street.—Clinical Demonstrations on the Diseases of the Throat, Nose, and Ear are given daily at 2 P.M. and on *Tuesday and Friday* evenings at 6 P.M. Operations are *performed* almost daily at 9.30 A.M. Individual instruction is given in the examination of cases to students attending the hospital Fees: one month's attendance, £1 1*s.*; three *months*, £2 2*s.*; perpetual £5 5*s.* Detailed *information may be obtained from the Hon.* Secretary of the Medical Committee.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with this institution there has been for some years a well-organised Clinical Department *To meet the want* increasingly felt by medical men *of an accurate* knowledge of the ordinary diseases of women gentlemen are appointed to act as clinical assistants to the physicians and surgeons seeing out- and in-door patients. The appointments are nominally "open to qualified medical men and to students of medicine after their fourth year," but in the selection of candidates preference is naturally given to gentlemen already engaged in practice. The large number of out-patients affords exceptional opportunities for practical instruction in the use of gynæcological instruments *and for* the study of diseases peculiar to women. Operations *may* be attended in the theatre on Monday, Tuesday, Thursday, and *Friday* afternoons at 2 P.M. Fee for one month £3 3*s.*; for the three months' course and certificate £8 8*s.* Any further information can be obtained by writing *to the* Dean at the hospital.

ROYAL HOSPITAL FOR DISEASES OF THE *CHEST*, City-road. (80 beds.)—This hospital has been enlarged by the addition of a very complete out-patients' department, and also by the erection of a new wing, *which* provides accommodation for 80 in-patients. *Expenditure* for 1902 £7329; income (*including legacies* £521). £7254. The attendance of out-patients averages 26,000 annually.

Staff.—Consulting Physicians: Dr. Horace Dobell and Professor D. W. Finlay. Physicians: Dr. P. J. Hensley, Dr. T. G. Smith, Dr. W. H. White, Dr. Oswald Browne, Dr. A. Davies, and Dr. J. Calvert. Assistant Physicians: Dr. M. Leslie, Dr. J. H. Drysdale, and Dr. A. G. Phear. Consulting Surgeon: Mr. J. Hutchinson. Surgeon: Mr. W. Turner. Resident Medical Officer: Dr. L. W. C. Macpherson. House Physician: Dr. C. L. Traylen. Secretary: Mr. A. T. Mays.

ROYAL EAR HOSPITAL, Soho. (Founded 1816.)—Courses of instruction of six weeks' duration in Diseases *of* the Ear and Nose are given by the members of the staff throughout the year. Students can attend one or more surgeons, the fee for each surgeon's course being one guinea The teaching is *of* a practical character *and* the number *of* students is limited. Clinical assistants are also appointed. *For* information address the Honorary Secretary *of* the Medical Board, Mr. Macleod Yearsley.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Consulting Physician: Sir S. Wilks, Bart. *Physicians:* Dr. R. Burnet, Dr. E. C. Beale, Dr. C. E. Beevor, Dr. H. W. Syers, Dr. A. Morison, and Dr. T. J. Horder. Obstetric Physician: Dr. Blacker. Surgeons: Mr. J. Macready, Mr. P. T. B. Beale, Mr. G. B. M. White, Mr. E. C. Stabb, and Mr. V. W. Low. Ophthalmic Surgeon: Mr. A. S. Morton. Ear, Throat, and Nose Surgeons: Mr. W. R. H. Stewart and Mr E. B. Waggett. Skin Department: Dr. Whitfield. Dental Surgeon: Mr. C. F. P. Baly. This hospital is now recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the Medical Curriculum. The hospital contains 159 beds, which are now all occupied. *The large rectangular and* circular wards, each of which contains 20 beds, the operation theatre, out-patient, general and special, and the pathological departments, have all been erected since 1887. They are specially designed with a view of offering the greatest facilities for clinical work, and contain all the most recent and approved hygienic and antiseptic requirements for the proper care of the sick and for the treatment of disease. Medical practitioners are cordially invited to see the general and special practice of the hospital. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. Further particulars from Mr. Peyton T. B. Beale, Honorary Secretary Medical Committee, 61, Grosvenor-street, W.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Physicians for In-patients: Miss Cock, M.D., and Miss Walker, M.D. Surgeons for In-patients: Mrs. Boyd, M.D., and Miss Aldrich-Blake, M.D., M.S. Physicians and Surgeons for Out-patients: Miss Webb, M.B., Miss Macdonald, M.B., and Miss Chadburn, M.D. Children's Department: Mrs. Flemming. M.D. Ophthalmic Surgeon: Miss Ellaby, M D. Assistant Physicians for Out-patients: Miss Long, M.D., Miss Anderson, M.D., D.S., Miss Corthorne, M.D., and Miss Dobbie, M.D. Physician for *Maternity Department:* Miss Clapham, M.B. Anæsthetists: Miss Browne, L.S.A., and Miss Thorne, M.D. A considerable number of the students hold posts in the New Hospital under the *visiting* staff, and in *return for much valued* clinical teaching they do the work assigned to students in the wards of a general hospital. Secretary: Miss M. M. Bagster.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. (Established 1873.)—Physicians: Dr. Fenwick, Dr. Parkinson, and Dr. Addinsell. Surgeons: Sir William J. Collins and Mr. H. J. Paterson. Dental Surgeon: Mr. A. Alexander. The hospital contains 110 beds. The in-patients in 1902 were 1471, and the out-patients and casualties numbered 24,135 new cases. The medical and surgical practice of the hospital is open to students and practitioners. Special departments for Ophthalmology and Gynæcology. Operations: Mondays and Thursdays, 3.30 P.M. Classes will be held during the winter and summer sessions for students preparing for the final examinations at the Colleges and the Universities. Appointments, vacancies for which are advertised in the medic[illegible]: Medical and Surgical Registrars and Pathologist; [illegible] Assistant Resident Medical Officer, and Assistant House Surgeon. For particulars as to hospital practice and classes apply at the hospital to Sir William J. Collins.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany *Memorial*), Queen-square, *Bloomsbury.*—The hospital, with the Finchley branch, contains 200 beds and cots. The physicians attend every Monday, Tuesday, Wednesday, and Friday at 2.30 P.M In- and out-patient practice and electrical-room treatment at that hour. Physicians: Dr. Hughlings Jackson, Dr. Buzzard Dr. Bastian, Sir William Gowers, Dr. D Ferrier, Dr. Ormerod, and Dr. Beevor. Physicians for Out-patients: Dr. Tooth, Dr. James Taylor, Dr. J. S. Risien Russell, and Dr. Aldren Turner. Assistant Physicians: Dr. Batten and Dr. J. S. Collier. Surgeons: Sir Victor Horsley and Mr. C. A. Ballance. Ophthalmic Surgeon: Mr. Marcus Gunn. Aural Surgeon: Mr. A. E. Cumberbatch. Laryngologist: Sir Felix Semon. Anæsthetist: Dr. R. T. Bakewell. Pathologist: Dr. F. Buzzard. Registrar: Mr Goldwin Howland. House Physicians: Dr. T. Grainger Stewart, Dr. Gordon Holmes, and Dr. Macnamara. The hospital is a school of the University of London and has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work. All communications concerning clinical appointments, lectures, and hospital practice should be addressed to the Secretary at the hospital.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND *MIDWIFERY* TRAINING SCHOOL, Marylebone-road, N.W.—

Consulting Physician Dr George B Brodie Consulting Surgeon Mr Alfred Willett Physicians to In patients Dr W S A Griffith Dr W Rivers Pollock, and Dr W J Gow Physicians to Out-patients Dr T W Eden, Dr C Hubert Roberts, and Dr Arthur F Stabb This hospital, which has been recently again enlarged and in which many important improvements have been carried out, receives over 1200 patients annually, besides having a large out-patient department Medical pupils are received at all times of the year Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases — nearly three fourths of the total admissions Clinical instruction is given on the more important cases which present themselves Certificates of

Students £8 8s for four weeks, Qualified Medical Practitioners, £8 8s for four weeks Pupil Midwives (including board and lodging), £25 for three months £29 for four months, and £33 for five months, Pupil Nurses (including board and lodging), £18 for twelve weeks and £25 for sixteen weeks The new residence for students and qualified practitioners is opposite the hospital with which it is in telephonic communication Terms for residence and full board 35s per week For further particulars application should be made to Mr Arthur Watts Secretary, at the hospital Students can join at any time, but preferably on the first Monday in each month

THE SEAMEN'S HOSPITAL SOCIETY —There are two hospitals—the *Dreadnought* Hospital at Greenwich (225 beds) and the Branch Hospital in the Royal Victoria and Albert Docks E (50 beds) There are also two Dispensaries, one in the East India Dock road and the other at Gravesend which supply patients to the hospitals The London School of Tropical Medicine, with its laboratories, museum library, &c, is within the grounds of the Branch Hospital Honorary medical staff of the hospitals —Consulting Physician Dr Robert Barnes Physicians Sir Patrick Manson Professor R Tanner Hewlett, Dr Guthrie Rankin and Dr Andrew Duncan Surgeons Mr W Johnson Smith, Mr William Turner, Mr James Cantlie, and Mr Lawrie H McGavin Surgeon to Out patients Mr Arthur Evans Ophthalmic Surgeon Mr L Vernon Cargill Dental Surgeon Mr Kenneth W Goadby Anæsthetist Mr Kenneth Steele The lecturers in the school are Sir Patrick Manson Dr Andrew Duncan, Dr L Westenra Sambon Dr J M H MacLeod Professor R Tanner Hewlett Mr James Cantlie, Mr E Treacher Collins and Professor W J Simpson Appointments —There is a House Physician House Surgeon and Junior Resident Medical Officer at the *Dreadnought* Hospital Greenwich, a Senior House Surgeon and House Surgeon at the Branch Hospital and a Surgeon at each of the Dispensaries The pay of these officers varies from £50 to £100 Scholarships —The Craggs Research Scholarship of £300 per annum was awarded in 1900 to Mr G C Low

The Study of Tropical Diseases —Opportunities are afforded to Medical Graduates who may be desirous of studying Diseases Incidental to Tropical Climates and also Practical Surgery before entering the services or going abroad In the hospitals of the Society are to be found cases of tropical disease such as may be met with in actual practice in the tropics There are three courses in the year, each lasting three months, the first beginning Oct 1st Certificates are granted after examination to those who complete a full course Resident chambers are available for students who must be post graduates or in the fifth year of their medical studies The School is under the auspices of His Majesty's Government Over 350 students have passed through the school since its opening in October, 1899 Various official and other appointments in the Tropics are from time to time in the gift of the school A free register is maintained at the School, giving the names of gentlemen qualified to take duty as medical officers in the Tropics For terms apply to the Secretary Mr P Michelli Seamen's Hospital Greenwich, S E

THE HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C, contains 200 beds, divided into 102 medical 73 surgical, and 25 for special and infectious cases besides 52 beds at the convalescent branch, Highgate The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students who have completed four years of medical study and also to qualified medical men Appointments are made every three months to six medical clerkships and six surgical clerkships, which are open to students of the hospital Lectures or demonstrations are given once or twice every week during both winter and summer sessions, which qualified practitioners are invited to attend free of charge The sessions are of ten weeks' duration and begin in October, January, and March Fees for hospital practice three months, 2 guineas, perpetual, 3 guineas Prospectuses and further information will be forwarded on application to the Secretary, Mr Adrian Hope, at the hospital

Staff —Consulting Physicians Dr W H Dickinson, Dr W B Cheadle and Sir Thomas Barlow, Bart Physicians Dr David B Lees Dr Francis G Penrose Dr A E Garrod and Dr A F Voelcker Assistant Physicians Dr W S Colman Dr F E Batten, Dr G F Still, Dr F J Poynton and Dr Robert Hutchison Consulting Surgeons Sir Thomas Smith Bart, Mr Howard Marsh Mr Edmund Owen Mr John Morgan and Mr Bernard Pitts Surgeons Mr W Arbuthnot Lane, Mr Charles A Ballance and Mr Thomas H Kellock Assistant Surgeons Mr H Stansfield Collier, Mr Francis J Steward, and Mr Edred M Corner Ophthalmic Surgeon Mr W T Lister Aural Surgeon Mr Thomas H Kellock Surgeon Dentist Mr Stanley Colyer Local Medical Officer for Cromwell House Dr A M Anderson Medical Registrar Dr Baumann Clinical Pathologist and Bacteriologist Mr Sheffield Neave Anæsthetist Dr R F Bakewell Second Anæsthetist Dr R W Collum Resident Medical Superintendent Mr G E Waugh Secretary Mr Adrian Hope Assistant Secretary Mr James McKay

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804-1899) City road E C —138 beds This hospital, known as Moorfields Eye Hospital, was moved in 1899 to new and larger buildings in City road In 1902 there were 1979 in patients the new out patients were 32,442 and the attendances were 107 491 Operations are performed daily from 10 A M to 1 P M, and four surgeons attend on each day Students are admitted to the practice of the Hospital Fee for six months £3 3s, perpetual, £5 5s Courses of instruction on the following subjects are given at the Hospital periodically (1) the use of the ophthalmoscope, (2) errors of refraction, (3) external diseases of the eye, and (4) surgical anatomy of the eye Perpetual students are admitted to the lectures free Systematic instruction is also given on operative surgery and on the pathology of the eye Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants Junior assistants are appointed every three months Any further information will be furnished by Mr Robert J Bland, Secretary

Staff —Physicians Sir Stephen Mackenzie and Dr J Taylor Consulting Surgeons Mr J Hutchinson Mr G Lawson Mr J Couper, Mr E Nettleship and Mr J Tweedy Surgeons Mr W Tay, Mr R M Gunn, Mr W Lang, Mr A. Q Silcock, Mr J B Lawford, Mr A S Morton, Mr E T Collins, and Mr W T H Spicer Assistant Surgeons Mr P Flemming, Mr J H Fisher, Mr A Lawson and Mr C D Marshall Medical Officer to the X ray Department Mr J M Davidson Curator and Librarian Mr J H Parsons Senior House Surgeon Mr W S Inman Second House Surgeon Dr W Anderson Out patient Surgical Second Officer Mr T Phillips Third House Surgeon Mr C A Campbell

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL King William street, West Strand —The hospital contains 40 beds Patients, who number 11 000 annually, are seen at 1 P M, and operations performed daily at 2 P M The following are the days of attendance of the surgeons: Mr Hartridge and Mr Grimsdale Mondays and Thursdays, Mr Frost and Mr Roll Tuesdays and Fridays, and Mr Dodd and Mr Brewerton, Wednesdays and Saturdays The practice of the hospital is open to practitioners and students Fees for six months, £3 3s, perpetual, £5 5s Students of the hospital are eligible for the posts of house surgeon and clinical assistants Special demonstrations and lectures will be given during the session commencing in October, for details see weekly journals Clinical Assistants (who must be duly qualified) to the surgeons are appointed for periods of six months Secretary Mr T Beattie Campbell

Assistant Physicians: Dr. J. R. Charles and Dr. S. H. Perry. Surgical Casualty Officers: Mr. A. D. Heath and Mr. F. V. Milward. Dental Surgeon: Mr. A. T. Hilder. Surgical Radiographer: Dr. F. Hall Edwards.

Staff of Queen's Hospital.—Consulting Physicians: Sir J. Sawyer and Dr. Suckling. Consulting Surgeons: Mr. F. Jordan, Mr. J. St. S. Wilders, and Mr. F. Marsh. Physicians: Dr. Carter, Dr. Foxwell, and Dr. Kauffmann. Surgeons: Mr. Bennett May, Mr. Jordan Lloyd, and Mr. J. T. J. Morrison. Ophthalmic Surgeon: Mr. Priestley Smith. Obstetric Officer: Dr. Purslow. Physicians for Out-patients: Dr. Stanley and Dr. Emanuel. Surgeons for Out-patients: Mr. C. A. L. Green, Mr. Billington, and Mr. Nuthall. Assistant Ophthalmic Surgeon: Mr. Wilfrid Allport. Pathologist: Dr. Stanley Barnes.

UNIVERSITY COLLEGE, BRISTOL (FACULTY OF MEDICINE).—Students of the College are admitted to the Clinical Practice of the Bristol Royal Infirmary and the Bristol General Hospital conjointly, and consequently both these institutions are open to all students. The Infirmary and the Hospital comprise between them a total of 470 beds; and both have very extensive out-patient departments, special departments for the Diseases of Women and Children, and of the Eye, Ear, and Throat, besides large outdoor Maternity Departments and Dental Departments. Students may also attend the practice of the Bristol Royal Hospital for Sick Children and Women, containing 104 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is 614. Very exceptional facilities are thus offered to students for obtaining a wide and thorough acquaintance with all branches of Medical and Surgical work. Each student has the opportunity of personally studying a large number of cases and of acquiring practical skill in diagnosis and treatment.

Courses of Lectures.—Medicine: Professor E. Markham Skerritt and Professor J. E. Shaw. Surgery: Professor C. A. Morton and Professor James Swain. Anatomy: Professor Edward Fawcett. Practical Anatomy: Demonstrators, Dr. J. O. Symes and Mr. T. Carwardine. Physiology and Histology: Professor A. F. Stanley Kent. Chemistry: Professor Sydney Young. Public Health: Dr. D. S. Davies. Midwifery and Diseases of Women: Professor W. C. Swayne. Medical Jurisprudence: Dr. R. Eager and Dr. G. Parker. Pathology and Morbid Anatomy: Professor J. Michell Clarke. Operative Surgery: Mr. J. Paul Bush. Practical Medicine: Dr. J. E. Shaw. Practical Surgery: Dr. R. G. Poole Lansdown. Practical Midwifery: Mr. D. C. Rayner. Materia Medica and Practical Pharmacy and Pharmacology and Therapeutics: Dr. A. B. Prowse. Biology: Professor S. H. Reynolds. Practical Chemistry: Professor Sydney Young. Practical Bacteriology: Professor A. F. Stanley Kent. Comparative Anatomy: Professor C. Lloyd Morgan. Dental Anatomy and Physiology: Professor A. F. Stanley Kent. Dental Surgery: Mr. W. R. Ackland. Dental Mechanics and Dental Metallurgy: Dr. C. A. Hayman. Composition fee for lectures, 65 guineas or 55 guineas. Composition fee for Dental Lectures, 55 guineas. Special six months' course for Diploma in Public Health. 1. Lectures on Public Health: Dr. D. S. Davies. 2. Bacteriology: Professor A. F. Stanley Kent. 3. Laboratory Course of Hygienic Chemistry: Mr. F. W. Stoddart. 4. Demonstrations on the Various Acts, Orders, By-laws, &c.: Mr. J. C. Heaven. 5. Practical Outdoor Sanitary Work: Dr. D. S. Davies. Fee for the entire course 25 guineas. Full information can be obtained on application to the Dean, Professor E. Markham Skerritt, University College, Bristol.

ROYAL INFIRMARY, BRISTOL (Established 1735).—270 beds. Honorary and Consulting Physician: Dr. W. H. Spencer. Honorary and Consulting Surgeons: Mr. E. C. Board and Mr. W. H. Harsant. Honorary and Consulting Ophthalmic Surgeon: Mr. F. Richardson Cross. Physicians: Dr. R. Shingleton Smith, Dr. Henry Waldo, Dr. J. E. Shaw, and Dr. Arthur B. Prowse. Surgeons: Mr. A. W. Prichard, Mr. J. Paul Bush, Mr. G. Munro Smith, and Dr. James Swain. Ophthalmic Surgeon: Dr. Ogilvy. Obstetric Physician: Dr. Walter C. Swayne. Dental Surgeon: Mr. W. R. Ackland. Assistant Physicians: Dr. P. Watson Williams and Dr. F. H. Edgeworth. Assistant Surgeons: Mr. T. Carwardine and Mr. H. F. Mole. Pathologist: Dr. Theodore Fisher. Bacteriologist: Professor A. F. Stanley Kent, M.A. Skiagraphist: Mr. James Taylor. Dental Assistant: Dr. C. A. Hayman. Instructor in Anæsthetics: Dr. F. H. Edgeworth. House Surgeon: Mr. E. H. E. Stack. House Physician: Dr. J. A. Nixon. Resident Obstetric Officer: Mr. N. A. W. Conolly. Anæsthetist and Junior House Surgeon: Mr. W. T. McCowen. Casualty Officer: Mr Ivon Hawes.

BRISTOL GENERAL HOSPITAL.—Honorary and Consulting Physician: Dr. A. J. Harrison. Honorary and Consulting Surgeons: Mr. Robert W. Coe, Dr. George F. Atchley, Mr. Nelson C. Dobson, Mr. F. Poole Lansdown, and Mr. Chas. F. Pickering. Honorary and Consulting Physician Accoucheur: Appointment vacant. Physicians: Dr. E. Markham Skerritt, Dr. J. Michell Clarke, and Dr. George Parker. Surgeons: Mr. C. A. Morton and Dr. R. G. Poole Lansdown, Dr. J. Lacy Firth, and Dr. H. Greville Kyle. Physician Accoucheur: Dr. W. H. C. Newnham. Physician to Department for Diseases of the Skin: Dr. A. J. Harrison. Physician to the Throat and Nose: Dr. J. Lacy Firth. Ophthalmic Surgeon: Mr. Cyril H. Walker. Assistant Physicians: Dr. J. O. Symes and Dr. Newman Neild. Assistant Surgeon: Mr. E. W. H. Groves. Assistant Physician Accoucheur: Mr. D. C. Rayner. Anæsthetists: Mr. J. Freeman and Mr. Hedley Hill. Dental Surgeon: Mr. T. Taylor Genge. Pathologists: Dr. J. Michell Clarke and Dr. Newman Neild. Bacteriologist: Dr. J. O. Symes. Skiagraphist: Dr. W. Kenneth Wills.

Clinical Scholarships and Prizes.—These are open for competition only to "Perpetual" Clinical Students. 1. Open Scholarships and Prizes:—(*a*) University Entrance Scholarship of £50 and Haberfield Entrance Scholarship of £30. (*b*) Tibbitts Surgical Prize, £9 9*s.*; and two Martyn Pathological Prizes of £10 each. (*c*) A Gold Medal and a Silver Medal given by the Committees of the two institutions. 2. Restricted to students who have done the necessary qualifying work at the Bristol Royal Infirmary: Suple Medical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Suple Surgical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Clark Prize, value £11 11*s.*; Crosby Leonard Prize in Clinical Surgery, value £7 7*s.*; and Augustin Prichard Prize in Surgical Anatomy, value £7 7*s.* 3. Restricted to students who have done the necessary qualifying work at the Bristol General Hospital:—Clarke Scholarship, a surgical scholarship of the value of £15; Sanders Scholarship, a scholarship of the value of £22 10*s.*; and the Marshall Prize, value about £12.

Resident Appointments.—There are five resident appointments at the Infirmary and four in the Hospital, and the Dressers reside in rotation, free of expense. The Maternity students also have rooms provided in the institutions

Fees.—Medical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Surgical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Medical and Surgical Practice together in one payment: six months, 12 guineas; one year. 20 guineas; perpetual 35 guineas. Dental Surgical Practice: one year, 7 guineas; perpetual, 12 guineas. The above fees include Clinical Lectures. Clinical Clerkship: 5 guineas for six months. Dressership: 5 guineas for six months. Museum fee: 3 guineas (composition on entrance), or 1 guinea annually. Dispensing Fee: 2 guineas. Students from other schools or qualified medical men wishing to attend Clinical Practice for short periods and not requiring certificates for such attendance may do so for the following fees:—Medical and Surgical Practice conjointly: one month, 2 guineas; two months, 3 guineas; three months, 4 guineas; and six months, 7 guineas. The Medical Session opens Oct. 1st.

Further information may be obtained on application to the Dean of the Faculty.

OXFORD: RADCLIFFE INFIRMARY.—At this hospital instruction is given in connexion with the Oxford University Medical School. Clinical lectures are given by the Lichfield Clinical Lecturers in Medicine and Surgery. Also tutorial instruction and demonstrations are given in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis, and Surgical Manipulation. Demonstrations of Pathology are given in the post-mortem room and at the Pathological Department, University Museum, by the reader in Pathology. Practical Pharmacy is taught in the Infirmary Dispensary. The whole combined course of study at the museum and hospital is intended for students until they have passed the Second Conjoint Examination or the First Oxford M.B. The infirmary contains 147 beds.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge *University Medical School, are delivered at this hospital* twice a week during the academical year; and practical instruction in Medicine and Surgery in the wards and out-patients' rooms is given by the physicians and surgeons daily, during the vacations as well as term time. Instruction is also given in the special methods of medical and surgical investigation. Clinical Clerks and Dressers are selected from students according to merit and without payment. The composition fee for pupilship is 8 guineas.

UNIVERSITY COLLEGE, CARDIFF, SCHOOL OF MEDICINE — The winter session will commence on Tuesday, Oct. 6th. All classes are open to both men and women students who may spend three out of their five years of medical study at Cardiff. The courses of study are recognised as qualifying for the Preliminary Scientific and Intermediate Examination in Medicine in the University of London and for the corresponding examinations in the other Universities Students who are preparing for these examinations may compound for their courses by paying a fee of £57 10s, while a composition fee of £40 includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the Cardiff Infirmary. The attention of students about to matriculate is drawn to the numerous entrance scholarships and exhibitions, varying in value from £10 to £30 per annum, offered for competition at University College, Cardiff, in September next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health established in 1899 instruction is given qualifying for the D.P.H. examinations. Further information may be obtained from the Dean of the Faculty of Medicine.

Lecturers.—Physics: Professor A. L. Selby. Chemistry: Professor C. M. Thompson. Biology: Professor W. N. Parker and Dr. A. H. Trow. Anatomy: Professor A. F. Dixon. Physiology: Professor J. B. Haycraft. Materia Medica and *Therapeutics: Dr. D. R. Paterson. Bacteriology: Mr. H. A.* Schölberg. Public Health and Hygiene: Dr E Walford and Dr. W. Williams.

CARDIFF INFIRMARY. — Consulting Physicians: Dr. W. T. Edwards, Dr. William Taylor, and Dr C. T. Vachell. Consulting Surgeon: Dr. Alfred Sheen. Physicians: Dr. F. W. Evans and Dr. H R. Vachell Surgeons: Mr. T. Wallace, Mr. P. Rhys Griffiths, Mr. William Sheen, and Mr. J. Lynn Thomas, C B. Assistant Physicians: Dr. D. R. Paterson, Dr. A E Taylor, and Dr. W. Mitchell Stevens. Assistant Surgeons: Mr H. G. Cook, Mr. Cornelius A. Griffiths, and Mr. William Martin Ear, Throat, and Nose Department: Dr. D. R Paterson. Ophthalmic Surgeons: Mr. J. T. Thompson and Mr. H. O Ensor. Assistant Ophthalmic Surgeon: Mr. F. P. S. Cresswell. Gynæcologists: Dr. Ewen J. Maclean and Dr. E. Tenison Collins. Pathologist: Dr. W. Mitchell Stevens. Anæsthetists: Dr. Fredk. W. S. Davies, Dr. W. G. Williams, and Dr. Cyril Lewis. Dental Surgeon: Mr John O *Oliver. Resident Medical Officer: Dr. Alex Brownlee.*

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—The following Scholarships and Prizes are awarded annually:— Four University of Durham Scholarships, value £25, tenable for four years, for proficiency in Arts, awarded to full students in their first year. The Dickinson Scholarship, value interest of £400, and a Gold Medal, for Medicine, Surgery, Midwifery, and Pathology. The Tulloch Scholarship, value the interest of £400, for Anatomy, Physiology, and Chemistry. The Charlton Scholarship, value the interest of £700, for Medicine. The Gibb Scholarship, value the interest of £500, for Pathology. The Goyder *Memorial* Scholarship (at the Infirmary), value the interest of £325, for Clinical Medicine and Clinical Surgery. The Luke Armstrong Memorial Scholarship, value the interest of £680, for Comparative Pathology. The Stephen Scott Scholarship in Surgery, value the interest of £1000. Heath Scholarship: The late Dr. George Yeoman Heath, President of the University of Durham College of Medicine, bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year; the next award will be in 1904. The Gibson Prize, interest on £225, in the depart*ment of Midwifery and Diseases of Women* and Children. At the end of each session Prizes of Books are awarded in each of the regular classes. Assistant Demonstrators of Anatomy, receiving each an honorarium of £5, Prosectors, and Assistant Demonstrators of Physiology and Pathology are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Throat and Ear Department, and Skin Department, Clinical Clerks, and Dressers are appointed every three months.

NEWCASTLE-UPON-TYNE ROYAL INFIRMARY. — Physicians: Dr. Drummond, Dr. Oliver, Dr. Limont, and Dr. *Murray. Assistant Physicians*: Dr. Beattie and Dr. Bolam. Surgeons: Dr. Hume, Mr. Rutherford Morison, Mr. Ridley, and Mr. Martin. Assistant Surgeons: Mr. H. B. Angus, Mr. J. V. W. Rutherford, Mr. Richardson, and Mr. Leech. Pathologist: Dr. Beattie. Dental Surgeon: Mr. R. L. Markham. Skin Department: Dr. Limont. Eye Department: Mr. Wardale. Throat and Ear Department: Mr. Ridley. Anæsthetist: Dr. W. D. Arnison. Medical Registrars: Dr. Moore Ede and Dr. Simpson. Surgical Registrars: Mr. John Clay and Mr. G. G. Turner. Psychological Out-patients: Dr. McDowall. The infirmary contains 280 beds. Clinical Lectures are delivered by the Physicians and Surgeons in rotation. Pathological Demonstrations are given by the Pathologist as opportunity offers. Practical Midwifery can be studied at the Newcastle Lying-in Hospital. Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth. A Special Course of Instruction is given in the City Hospital for Infectious Diseases by the Superintendent, the City Officer of Health, Mr. H. E. Armstrong. The sessions open on May 1st and Oct. 1st of each year.

YORKSHIRE COLLEGE, LEEDS: MEDICAL FACULTY.[1]—The Leeds General Infirmary, in connexion with this medical faculty, has accommodation for 482 in-patients, including 46 beds at a "semi-convalescent home" in the country. During the last year 6463 in-patients and 40,113 out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical Lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, Electrical, Finsen Light, and X-ray Departments, in each of which special instruction is imparted *to students* A Gynæcological and Extern Obstetric Department, together with Laryngeal and Skin Clinics, are in operation. The Public Dispensary, the Hospital for Women and Children, the Fever Hospital, and the West Riding Lunatic Asylum are other medical institutions which are made use of by the Leeds students. Eleven years ago the new buildings of the Medical School were opened. Placed close to *the Infirmary*, the *new* School of Medicine contains complete accommodation for the training of medical students upon the most approved modern methods. A very fine dissecting-room, extensive laboratories for Physiology and Pathology, with the most recent improvements in fittings and apparatus, ample lecture-room accommodation, a large Library, and separate Museums for Pathology and Anatomy are some of the most striking features of the new buildings. Provision for the convenience of students, in the shape of a common-room, a refectory, &c., are made. The classes in Systematic and Practical Chemistry, Physics and Biology, are held in the Science and Arts Department of the College, in College-road. Two Entrance Scholarships are offered: one, of the value of 64 guineas, covering admission to all requisite lectures; and the other, of the value of 40 guineas, covering the cost of admission to the medical and surgical practice of the infirmary. Several valuable prizes are given at the end of each session. The following appointments at the Infirmary are annually open to students (for some of them, however, a *registered* legal qualification is required):

---

[1] See Victoria University, page 658.

Non-resident: senior anæsthetist, £50; 5 anæsthetists, £25; pathological curator, £120. Resident: medical officer, £100; surgical officer, £100; casualty officer, £100; obstetric, £50; ophthalmic, £50. These appointments are made annually and holders are eligible for re-election. Resident medical officer to the Ida Hospital, for six months; honorarium £25. Six house physicians, for six months; 4 house surgeons, for 12 months; 24 physicians' clerks, for six months; 24 surgeons' dressers, for six months; 16 ophthalmic and aural surgeons' dressers, for three months; 12 gynæcological ward clerks, for three months; 16 gynæcological out-patient clerks, for three months; 24 maternity clerks, for one month; 24 assistant physicians' clerks, for three months; 8 dermatological clerks, for three months; 8 laryngological clerks, for three months; 24 assistant surgeons' dressers, for three months; 8 assistant ophthalmic surgeons' dressers for three months; 24 dressers in the casualty-room, for three months; 32 post-mortem room clerks, for three months; 8 laboratory assistants, for three months.

There are appointments open to students in other medical institutions in the town and also in the West Riding (Lunatic) Asylum.

The University of Liverpool: Medical Faculty.—Students may now enter for the degrees of the University of Liverpool or may study for the degrees and qualifications of the various other licensing bodies. The conditions as to the degrees of the University of Liverpool are for the present the same as those of the Victoria University.

Medical School Buildings—The older buildings have during the past six years been almost entirely replaced by spacious and well-equipped class-rooms and laboratories for the practical study of all the important scientific subjects which form the basis of medicine. Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation. All the laboratories and class-rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle. The most recent additions are the Johnston Laboratories for Experimental Medicine, Bio-chemistry, and Comparative Pathology and the Hartley Laboratory and Museum of Botany. The departments of Physiology and Pathology are accommodated in the large block provided by the generosity of the Rev. S. A. Thompson Yates in 1898. The Anatomical department is situated in a separate block and has a complete suite of rooms, including a large and well-stocked museum and a well-lighted dissecting room on the upper floor measuring 70 by 40 feet.

Hospitals—Students may take out their clinical work at the Liverpool Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, or the Stanley Hospital. Particulars as to fees, appointments, &c., may be obtained from the secretaries of the Medical Boards of these institutions. The practice of the Lying-in, Eye and Ear, Women's Children's, Dental, and Skin Hospitals is also open to the students of the Faculty of Medicine.

Fellowships and Scholarships.—Fellowships, scholarships, and prizes of over £700 are awarded annually. (*a*) A Holt Fellowship in Pathology and Surgery of the value of £100 for one year is awarded annually by the Medical Faculty to a senior student possessing a medical qualification. The successful candidate is required to devote a year to tutorial work and investigation in the pathological department. (*b*) A Holt Fellowship in Physiology, awarded under similar conditions, of the value of £100 for one year. (*c*) A Robert Gee Fellowship in Anatomy, awarded under similar conditions, also of the value of £100 for one year. (*d*) An Alexander Fellowship for Research in Pathology of the annual value of £100, renewable. (*e*) A Johnston Colonial Fellowship in Pathology and Bacteriology (£100 a year, renewable). (*f*) A John W. Garrett International Fellowship in Physiology and Pathology (£100 a year, renewable). (*g*) An Ethel Boyce Fellowship in Gynæcological Pathology (£100 a year, renewable). (*h*) Two Lyon Jones Scholarships of the value of £21 each for two years are awarded annually—a Junior Scholarship, open at the end of the first year of study to Liverpool University students, on the subjects of the First M.B. Examinations, and a Senior Scholarship, open to all students in the school at the end of the second or third year of study, on the subjects of Anatomy, Physiology, and Therapeutics. (*i*) The Derby Exhibition of £15 for one year is awarded in Clinical Medicine and Surgery in alternate years. Students may compete in their fourth and fifth years. In 1903 the subject will be Clinical Medicine. (*j*) The Torr Gold Medal in Anatomy, the George Holt medal in Physiology, the Kanthack Medal in Pathology, the Robert Gee Book Prize, of the value of £5, for Children's Diseases, and numerous Class Prizes are awarded annually.

Entrance Scholarships.—Four Robert Gee Entrance Scholarships of the value each of £25 for one year are offered annually for competition. The holder is required to take out the Science Course for the University Degree in Medicine. Communications should be addressed to the Dean, Professor Benjamin Moore, The University, Liverpool.

School of Tropical Medicine.—Courses of instruction are given in Tropical Diseases, particulars regarding which may be obtained from Mr. A. H. Milne, B 10, Exchange-buildings, Liverpool.

Public Health Department.—This is located in a separate building known as Ashton Hall in which full courses of instruction are given to D.P.H. students.

School of Pharmacy.—Complete courses of instruction are provided adapted to the requirements of candidates preparing for either the Minor or Major Examinations of the Pharmaceutical Society of Great Britain.

Opening of the Session.—The Winter Session will begin on Thursday, Oct. 1st.

Prospectuses and further information may be had on application to the Dean of the Medical Faculty, University of Liverpool.

Owens College, Manchester: Medical Faculty.[1]—This medical school is located in a large building, which forms a part of Owens College. It is provided with large dissecting-rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology, and Materia Medica, a large extension of the school buildings was made in 1895. The greater part of the new buildings is devoted to the departments of physiology, pathology, toxicology, anatomy, and public health. The physiological department occupies more than half of the new buildings, and includes a large lecture theatre, accommodating 350 students, with preparation and diagram rooms adjacent to it, and a research laboratory fitted with the necessary apparatus for the use of advanced students, research scholars, or practitioners of medicine undertaking the investigation of some special subject. In the new pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. In the toxicological department there is a large laboratory, capable of accommodating 50 students, lighted from both sides and also from the roof, completely equipped with all that is necessary for the practical teaching of toxicology; also a small laboratory for private research, containing the apparatus and fittings necessary for investigations in toxicological chemistry. In the public health department suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology. A large room is provided in the new buildings for a museum of apparatus, models, plans, and other sanitary appliances for the practical instruction of the students, together with a special library of works on State medicine, hygiene, vital statistics, and sanitary engineering. In addition, a large lecture theatre for general purposes, accommodating 250 students, has been provided, and the existing accommodation for students is supplemented by the provision of a larger common room. The more strictly practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary, as well as in a fever hospital, a lunatic asylum, and a convalescent home. Medical and Surgical Clinical Classes are conducted in the infirmary, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary. The following entrance scholarships are offered for award to persons of either sex proposing to enter a medical course of study at the College:—Seaton.—One of £40, tenable for two years. Subjects: Greek and

---

[1] See Victoria University, page 658.

Latin Translation at sight, and Prose Composition. Credit given for knowledge of Mathematics (Geometry and Algebra); Elements of English Language, Literature, and History; French and German. Rogers.—One of £40, tenable for two years. Subjects as in Seaton. Dalton.—Two of £40, tenable for two years. Subjects: Geometry (Euclid I.—IV., and VI., or the subjects thereof); Algebra (as far as the Binomial Theorem, inclusive). Plane Trigonometry (to Solution of Triangles); Elementary Analytical Geometry; Conic Sections. Credit given for knowledge of Classics, Elements of English Language, Literature, and History; French and German. Cartwright.—£35 per annum, tenable for three years. Subjects as in Dalton. Hulme.—£35, tenable for three years. Subjects: English Language (Grammatical Structure and Outlines of its History); English Literature (an essay on some subject of English literature); and Modern History (Outlines of English History and Geography); with at least two of the following: Latin (Translation at sight, Grammar, and Easy Composition); Greek (ditto); French (ditto); German (ditto). Credit given for knowledge of Mathematics (Geometry and Algebra). Dora Muir.—£25 per annum, tenable for three years (open to women only) Candidates may select such of the subjects as they desire from amongst those set for the other Entrance Scholarships. James Gaskill.—£35, tenable for two years. Subjects: Mathematics, Geometry (the substance of Euclid I.—IV. and VI.), Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles), Elementary Mechanics, Chemistry. Credit given for knowledge of Classics, Elements of English Language, Literature, and History, and French and German. *Manchester Grammar School.*—£18 per annum, tenable for three years. The examinations for all these scholarships are held in the month of May. Kay-Shuttleworth (Sir James Phillips).—£30 per annum, tenable for three years. Subjects: Mathematics, Elementary Mechanics, Chemistry. Entrance Scholarships in *Medicine.—One Scholarship in each year will be offered for proficiency in Arts and one for proficiency in Science. The Scholarships are of the value of* £100 each, which will be set off against their fees as follows: £60 against the College fees and £40 against the Infirmary fees Platt Biological Scholarship.—£50 for one year, awarded to the candidate who shows the most promise and ability for prosecuting original research in Zoology and Botany. Dauntesey Medical Scholarships.—Two Scholarships of £35 each are open to all students preparing for a medical course who shall not have attended lectures or Laboratory courses on human anatomy or physiology, or a purely medical or surgical course in the Owens College or any other Medical School in the United Kingdom. Candidates will be examined in Zoology, Botany, and Chemistry. Medals are awarded on the results of the various class examinations at the end of each session. A Platt Physiological Scholarship of £50 a year for two years is offered annually to the competition of persons whether previously students of the College or not. Two Platt Exhibitions, of the value of £15 each, to be competed for by first and second year students in the class of Physiology, and a Sidney Renshaw Exhibition in Physiology of the value of £15 to be competed for by
second yea
or Tom
Jones Mem
Dumville
Surgical P
of £20,
and a John
Children
of £30 are
rofessor
Tom Jone
awarded
triennially,
Clinical
Surgery of the value of £20 and Medical and Surgical Clinical Prizes, each of the value of 6 guineas, are open to competition each year for the best reports (with comments) of cases which have occurred in the wards of the infirmary. The session commences on Oct. 1st.

MANCHESTER ROYAL INFIRMARY (292 beds).—Consulting Physicians: Dr. Frank Renaud and Dr. Henry Simpson. Consulting Surgeons: Mr. Walter Whitehead and Mr. James Hardie. Physicians: Dr. J. Dreschfeld, Dr. Graham Steell, Dr. Thomas Harris, and Dr. J. S. Bury. Assistant Physicians: Dr. A. T. Wilkinson, Dr. Ernest S. Reynolds, and Dr. R. T. Williamson. Consulting Obstetric Physician: Dr. Lloyd Roberts. Gynæcological Surgeon: Dr. Archibald Donald. Surgeons: Mr. F. A. Southam, Mr. G. A. Wright, Mr. William Thorburn, and Mr. Joseph Collier. Assistant Surgeons: Mr. J. E. Platt, Mr. W. P. Montgomery, and Mr. J. W. Smith. Ophthalmic Surgeon: Dr. Hill Griffith. Aural Surgeon: Dr. William Milligan. Consulting Dental Surgeon: Mr. G. W. Smith. Dental Surgeon: Mr. W. A. Hooton.
W. D. Anderton. Medical Re
Surgical Registrar: Mr. C.
Clinical Laboratory: Dr. W.
Director of the Clinical Labor
Administrators of Anæsthetics: Mr. Alexander Wilson, Mr. W. J. S. Bythell, and Mr. B. M. Wilson. Assistant Medical Officer for Out-patients: Dr. W. R. Matthews. Assistant Surgical Officer for Out-patients: Mr. George Ashton. Medical Officer for Home Patients: Dr. A. C. Sturrock. General Superintendent and Secretary: Mr. W. L. Saunder. The Winter Session commences Oct. 1st.

THE ROYAL HOSPITAL, PORTSMOUTH (founded 1847).—The number of beds is 120. During the year 1902 there were 1384 in-patients and 10,180 out-patients. *Physicians*: Dr. John Phillips and Dr. C. C Claremont. Surgeons: Dr. J. Ward-Cousins, Dr. A. Lloyd Owen, and Mr. Henry Rundle. Honorary Anæsthetist: Dr. W. J. Essery. Assistant Physicians: Dr. W. P. McEldowney, Dr. L Cole Baker, and Dr. J T. Leon. Assistant Surgeons: Mr. C. P. Childe, Mr. T. A. M. Forde, and Mr. A. B. Wright. The hospital is a preparatory School of Medicine and Surgery; the attendance of pupils at this Hospital is recognised by the Examining Boards.

UNIVERSITY COLLEGE, SHEFFIELD—DEPARTMENT OF MEDICINE.—The opening of the Winter Session 1903-4 will take place on Oct. 1st. The introductory address will be given by Sir Michael Foster on Oct. 5th. The department of Medicine is fully equipped with the most modern appliances in every part and in this respect will compare favourably with similar institutions elsewhere. The Anatomical Department contains, in addition to a spacious dissecting room, a large lecture theatre and an excellent museum of dissections, &c The Favell Laboratory of Physiology is elaborately equipped. The department consists of a lecture theatre with lantern for demonstration purposes, and the laboratory is fitted with the most recent improvements. Each student has his own bench, with gas, water, electric light, and the requisite set of apparatus. The Pathology department is at present in a separate temporary building. It contains a large museum of pathological specimens, student's laboratory, lecture room with lantern for demonstrations, also bacteriological and pathological laboratories. The courses of instruction for the D P.H. examinations are recognised by the Royal College of Surgeons, Cambridge University, and the University of London. The opportunities for clinical work in connexion with the Medical Department are exceptionally good. For general clinical material the Royal Infirmary and the Royal Hospital offer unlimited supplies both medical and surgical. The Royal Infirmary contains 247 beds with special
The new
improve-
The post-
mortem department has also been recently improved and contains all the requisites for clinical and pathological research. The Royal Hospital, which has been entirely rebuilt during the last few years and is planned with all the latest improvements, contains 160 beds and has special ophthalmic wards. There are also special out-patient departments for diseases of the skin, nose and ear, eye, throat, and mental diseases. At both these institutions clinical clerkships and dresserships, casualty and ophthalmic dresserships and post-mortem clerkships, are allotted each three months. Clinical lectures are delivered each week during the winter months by members of the staffs, and daily systematic teaching is given in the wards and out-patient rooms at stated times. By a joint arrangement students taking out hospital practice are able for the single fee to attend the practice of either or both of the institutions as they choose. Fees: Perpetual hospital practice £45 in one payment; or £26 on commencing hospital practice, and £22 12 months later. For shorter periods the fees for hospital practice (medical and surgical) are at the rate of £2 2s. per month Composition fee for lectures and practical courses, £63; or in two instalments:

£36 15*s.* at commencement of medical study and £31 10*s.* at the beginning of the second year. For practical midwifery and disease of women students attend the Jessop Hospital for Women (80 beds), which has recently been considerably enlarged and extended; for infectious diseases the City Fever Hospitals; and for mental diseases the South Yorks Asylum. Arrangements have been made for the systematic teaching of anæsthetics in accordance with the new regulations. For all these special courses separate fees are required, which are not included in the composition or perpetual hospital fees. In connexion with the College there is now a complete dental department, which is fully recognised by the various examining bodies, and students are able to get their full curriculum here. The practical work is done at the dental department of the Sheffield Royal Hospital, where, in addition to the fully-equipped out-patient dental rooms, there has recently been added a very complete practical dental mechanical room and laboratory fitted with electric light and every modern convenience. Each student has his own bench and fittings provided.

The building of the new College for Departments of Arts, Science, and Medicine has been commenced and is in active progress. The site adjoins Weston Park and is within easy distance of the hospitals.

Prizes, &c.—An entrance scholarship of the value of £110 is awarded annually to the best candidate (if of sufficient merit) in Mathematics, Elementary Physics, Inorganic Chemistry, Latin, and English. Prizes for Clinical Medicine and Surgery of 10 guineas are offered by the Clinical Committee. Kaye Scholarship (being the interest on £900) for second-year students natives of Sheffield is awarded annually under certain regulations. Simon prize, £10, given annually in pathology. Prizes in books and certificates are awarded annually.

Jessop Hospital for Women, Gell-street, Sheffield.—The hospital contains 55 beds for gynæcological cases and 25 for obstetric cases. A staff of midwives connected with the hospital attend lying-in women at their own homes, and, in case of need, are assisted by the members of the medical staff. Out-patients are attended daily. Students can attend the practice of the hospital and be supplied with cases of midwifery. Communications should be addressed to the Secretary, York Chambers, York-street, Sheffield.

Royal Devon and Exeter Hospital, Exeter.—Medical and Surgical Staff: Consulting Physician: Dr. Drake. Physicians: Dr. H. Davy and Dr. William Gordon. Consulting Surgeon: Mr. T. W. Caird. Surgeons: Mr. J. D. Harris, Mr. E. J. Domville, Mr. Charles E. Bell, and Mr. A. C. Roper. The hospital contains 214 beds (including special children's wards) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. Arrangements can be made by which students can attend Midwifery on application to the House Surgeon. There is also a Private Nursing Staff attached to the Hospital. For particulars as to fees, &c., apply to the Matron. A new wing was added in 1897.

West of England Eye Infirmary, Exeter.—Physician: Dr. William Gordon. Surgical Staff: Mr. Tosswill and Mr. Roper. Assistant Surgeon: Mr. Ransom Pickard. Secretary: Mr. Ernest W. Toby. The infirmary contains 64 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1902 2945.

Kent and Canterbury General Hospital.—The hospital contains 104 beds. Pupils of the staff are admitted to the practice of the hospital and have the use of the library of the East Kent and Canterbury Medical Society for £7 7*s.* Operation day, Thursday, 11 A.M. Physician: Dr. Henry Alex. Gogarty. Consulting Surgeons: Mr. James Reid and Mr. Frank Wacher. Surgeons: Dr. T. Whitehead Reid, Mr. J. Greasley, Mr. Sidney Wacher, and Mr. Z. Prentice. Dentist: Mr. R S. N. Faro. Secretary: Mr. Arthur J. Lancaster. Over 700 in-patients, 2000 out-patients and casualties, and 500 dental cases are attended in a year.

Royal Infirmary, Liverpool. — The buildings of the new Royal Infirmary were completed and occupied as recently as 1890. They stand on the old site, adjacent to the College, but enlarged by the purchase of a fine frontage in Pembroke-place and with the Nurses' Home are spread over some four acres of ground. Externally, they form a handsome and imposing group of buildings. Every available open-air space has been taken advantage of to secure good airing grounds for the patients, and the beauty of the buildings has been not a little enhanced by the numerous balconies, colonnades, and flat roofs adapted to the same purpose for both patients and resident staff. Internally, no point in modern sanitary science has been omitted. There are 295 beds. The wards—some rectangular, some circular—have walls of glazed bricks and floors of waxed oak blocks laid on an iron and cement substratum. Four operating theatres and a clinical lecture theatre have been provided, the operating theatres being of the latest pattern and fulfilling all the most modern requirements of surgery. There is an electrical room and provision for special kinds of baths. The out-patient department comprises rooms for the treatment and study of minor medical and surgical maladies, for diseases of the eye, skin, larynx, nose, and teeth, as well as a gynæcological department. There is also a Lock Hospital. A room has been allotted to the clinical tutors, in which bacteriological investigations are made, whilst each physician and surgeon has a private room in connexion with his wards, where his clerks and dressers may write up and tabulate cases and investigate morbid products. The pathological department, which is daily becoming of more importance in medical education, has had much pains expended upon it, so as to give proper facilities for the study of morbid anatomy. It is hoped that the facilities for clinical work will be such as not merely to enable the present students to learn the practical parts of their profession thoroughly, but to attract students from over-crowded institutions where the number of pupils is far in excess of the opportunities for the bedside study of disease. There are eight house physicians and surgeons and two casualty officers (one resident) who are selected every six months from amongst the qualified students of the school. In no hospital in the country is the resident staff so comfortably lodged. Each is provided with a bed-room and a private sitting-room in addition to the music-room and dining-room, where all meet in common; a Room is also set aside for the exclusive use of the students.

Staff.—Consulting Physicians: Dr. Waters, Dr. Davidson, Dr. Glynn, and Dr. Caton. Physicians: Dr. Barr, Dr. Bradshaw, and Dr. Abram. Assistant Physicians: Dr. Buchanan and Dr E. E Glynn. Consulting Surgeons: Mr. Bickersteth and Sir William M. Banks. Surgeons: Mr R. Parker, Mr. F. T. Paul, and Mr. G. G. Hamilton. Gynæcological Surgeon: Dr. Grimsdale Assistant Surgeons: Mr. R. A. Bickersteth, Mr. W. T. Thomas, and Mr. T. C Litler Jones. Oculist: Mr. Bickerton. Laryngologist: Dr. Hunt. Dermatologist: Dr. Leslie Roberts. Dental Surgeon: Mr. Phillips. Pathologist: Dr. E. E. Glynn. Chloroformists: Mr. Fingland and Mr. Bailey. Lock Department—Surgeon: Mr. Armand Bernard. Secretary to the Medical Board: Dr. T. R Bradshaw, 51, Rodney-street.

Liverpool Royal Southern Hospital.—(Clinical Schools). — Honorary Consulting Physician: Dr. John Cameron. Honorary Consulting Surgeon: Mr. Robert Hamilton. Honorary Physicians: Dr. W. Carter, Dr. W. Williams, and Dr. C. J. Macalister. Honorary Surgeons: Dr. Wm. Alexander, Mr. Robert Jones, and Mr. Geo. P. Newbolt. Honorary Consulting Physician for Tropical Diseases: Professor Ronald Ross. Honorary Dermatologist: Dr. F. H. Barendt. Honorary Consulting Ophthalmic Surgeon: Dr. R. Williams. Honorary Consulting Aural Surgeon: Dr. C. G. Lee. Honorary Consulting Laryngologist: Dr. W. Permewan. Honorary Medical Officer x Rays Department: Dr. C. Thurstan Holland. Pathologist: Dr. Lyn Dimond. Honorary Anæsthetists: Dr. Robert Jackson, Dr. R. Stenhouse Williams, Dr. Frank E. Marshall, Dr. Arthur J. Evans. Honorary Dental Surgeon: Mr. J. Royston. The hospital is situated within convenient distance of the School of Medicine and contains 200 beds. There are special wards for accidents and Diseases of Children and there are also beds appropriated to the Diseases of Women. Clinical teaching is given in the hospital and arrangements have been made to render it both thorough and systematic. The members of the staff visit the wards daily and clinical lectures are given every week. Tutorial classes are also held each day at which the junior students are instructed in the methods of diagnosis and the seniors are prepared for their final examinations. The pathological department has a good laboratory attached in which the students receive practical instruction. A bacteriological laboratory has been added, where students are able to obtain a practical knowledge of bacteriology in relation to medicine. In addition to the usual clinical and post-mortem clerkships, which are open to all students, the resident post of Ambulance Officer is awarded every three months to the student whom the board may consider most suited to hold it. A Scholarship of £20 is competed for annually, which has attached to it some clinical and pathological duties; and three prizes of £5 each are yearly offered for the best series of clinical reports. Fees: Perpetual £26 5*s.*; one year £10 10*s.*; six months £7 7*s.*; three months £4 4*s.* A limited number of resident pupils can be received. Terms (exclusive of fees for Hospital Practice), £15 15*s.* per quarter. The practice of the hospital is recognised by all examining bodies. For further particulars apply to the Dean, Mr. George P. Newbolt, 42, Catharine-street, Liverpool.

DAVID LEWIS NORTHERN HOSPITAL, Liverpool.—An associated clinical school of the Liverpool University. Recognised by all the Examining Boards and Universities. 210 beds. The winter session and clinical lectures commence on Oct. 1st. Students of the school are appointed to clinical clerkships and dresserships at the commencement of each session. Arrangements for board and lodging in the hospital buildings can be made for a limited number of students. There are special facilities for graduates who desire to undertake clinical research as clinical assistants. A fully-equipped laboratory is attached to the hospital. Two senior students are appointed as assistant house surgeons at the beginning of each half year; board and lodging provided. House surgeons and physicians are appointed from time to time and are salaried. Consulting Surgeons: Mr. W. Macfie Campbell and Mr. Chauncy Puzey. Physicians: Dr. T. Bushby and Dr. W. B. Warrington. Surgeons: Mr. Damer Harrisson, Mr. R. W. Murray, and Mr. Keith Monsarrat. For all information as to time-table, curriculum, fees, &c., application should be addressed to the Secretary to the Medical Board at the hospital.

NORFOLK AND NORWICH HOSPITAL (220 beds).—Non-resident Pupils admitted. Fees: For three months, £3 3*s.*; for six months, £5 5*s.*; as permanent pupil, £8 8*s.* Consulting Physicians: Sir P. Eade and Sir Frederic Bateman. Consulting Surgeon: Dr. Beverley. Physicians: Dr. Barton, Dr. Burton-Fanning, and Dr. Long. Surgeons: Mr. Williams, Mr. H. S. Robinson, and Mr. S. H. Burton. Assistant Surgeons: Mr. D. D. Day and Mr. H. A. Ballance. Dental Surgeon: Mr. H. F. White. Secretary: Mr. F. G. Hazell.

[illegible] HOSPITAL (established 1743; [illegible] being much enlarged and the [illegible] ated and re-arranged and when complete it is proposed to take resident pupils. The number of beds is 163. Out-pupils are received and have every opportunity of acquiring a practical knowledge of their profession. Instruction is also given in Anatomy and Materia Medica and Practical Pharmacy. Non-resident pupils are taken at a fee of £10 10*s.*

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869, is built on the pavilion plan, has accommodation for over 200 patients, including Children's wards, special Ovarian wards, and a special department for the treatment of Diseases of the Eye. In-patients last year, 2149; out-patients, 12,007. The attendance of pupils at this infirmary is duly recognised by all the examining boards; and there are unusual facilities for acquiring a practical knowledge of the profession. Physicians: Dr. A. M McAldowie and Dr. S. King Alcock. Surgeons: Dr. G. Stokes Hatton and Dr. Wheeton Hind. Assistant [illegible] Herbert Nicholls and Mr. John [illegible] Mr. Reginald Alcock and Dr. [illegible] Surgeon: Mr. Herbert H. Folker. Assistant Ophthalmic Surgeon: Mr. J. F. Arlidge. Dental Surgeon: Mr. A. Baines. Secretary and House Governor: Mr. Albert E. Boyce.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL (founded 1845; beds, 230).—A preparatory school of Medicine and Surgery. The pupils have the advantage of seeing the whole of the practice of the physicians and surgeons and are trained in clinical work by the medical and surgical staff. The attendance of pupils at this hospital is recognised by all the examining boards.

Staff.—Consulting Physician: Dr. W. Millington. Consulting Surgeon: Mr. C. A. Newnham. Physicians: Dr. H. Malet and Dr. C. A. MacMunn. Surgeons: Mr. J. O'B. Kough, Mr. W. H. T. Winter, Mr. E. Deanesly, and Mr. A. H. Hunt. Assistant Physician: Dr. J. A. Codd. Assistant Surgeons: Mr. W. F. Cholmeley and Mr. H. Dent.

SUSSEX COUNTY HOSPITAL (190 beds).—During the year 190[illegible] treated. The total number of [illegible] the books during 1902 was 36,[illegible] ample facilities for students, possessing a large out-patient department, a library, and a well-appointed museum. The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Committee of Management shall direct.

Staff.—Physicians: Dr. W. A. Hollis, Dr. E. Mackey, and Dr. F F. G Dill Assistant Physicians: Dr. E. Hobhouse, Dr. E. F. Maynard, and Dr. W. Broadbent. Consulting Surgeons: Mr F. A. Humphry and Mr. H. P. Blaker. Surgeons: Mr. W. Furner, Mr. T J. Verrall, and Mr. R F. Jowers. Assistant Surgeons: Mr. F. J. Paley, Mr. A. Buck, and Mr. T H. Ionides.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury and Gartside street.—The hospital contains 168 beds and 24 in the Convalescent Home, St. Anne's on-Sea. The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. Out-patients are seen daily at 9 A.M. at the Dispensary, Gartside-street, Manchester. Physicians: Dr. Ashby and Dr. Hutton. Surgeons: Mr. W. P. Montgomery and Mr J. Howson Ray. Honorary Surgeons: Mr. G. A. Wright and Mr. Joseph Collier. Anæsthetist: Mr. Harold Snape. Honorary Aural Surgeon: Mr. F H. Westmacott. Honorary Dental Surgeon: Mr. Barron J. Rodway. Resident Medical Officers: Mr. McIlraith and Mr. C. P. Lapage. Medical Officer at the Dispensary: Mr. Tattersall. During 1902 there were 1698 in-patients, and 16,683 out-patients were under treatment at the Dispensary.

THE MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham-hill-road, Manchester.—The hospital is situated near the centre of the town and contains 70 beds. Out-patients are seen daily at 9.30 A.M. and the wards are visited at 11 A.M. Secretary, Mr. H. Teague, 38, Barton-arcade, Manchester.

NEWCASTLE-ON-TYNE INFIRMARY FOR DISEASES OF THE EYE.—Staff Surgeons: Mr. A. S. Percival and Mr. H. P. Bennett. Assistant Surgeons: Mr. Andrew Messer, and Mr. W. J. Penfold. Honorary Consulting Surgeon: Mr. Frederick Page Honorary Anæsthetists: Dr. R. F. Craggs and Dr. O. W. Ogden. Matron: Miss O. Crump. Out-patients 5000 annually; in-patients 280. Instruction is given daily from 11 to 1.

SCOTLAND.

MEDICAL SCHOOLS WITH FULL CURRICULUM.[1]

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that about 1000 students avail themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and [illegible] Dublin, the Faculty [illegible] and other Medical [illegible]

The anatomy rooms and laboratories will open on Thursday, Oct. 1st. On Tuesday, Oct. 13th, the lectures will commence.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school, in addition to the class of Practical Materia Medica and the classes of Clinical Medicine and Clinical Surgery. The regulations require that the fee for any class taken for graduation in

---

[1] For Scholarships see p. 703, et seq.

Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for graduation at the University of London may be taken in this school.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have held the office of clerk in their wards for at least six months. Six Residentships are appointed for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital. In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland, and they receive similar certificates at the close of each session. Moreover, the University and College authorities in Edinburgh and the governing board of the school call upon each recognised lecturer to supply them at the close of each session with a statement giving the number of students attending the class, the number of lectures or prelections delivered during the session, the class examinations held, and the general mode of conducting the class. The courses on special non-qualifying subjects have for the last quarter of a century formed a marked feature of the school. Indeed, such medical subjects could be studied in Edinburgh only in this school until lately, when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye, Insanity, and Diseases of Children to take charge of classes intra-murally. A list of the classes and lecturers will be found below. Special courses of instruction for dental students and for women are also included in the curriculum of this school. The classes of the school are conducted in several separate buildings, such as at Surgeons' Hall, Minto House, Nicolson-square, and the New School, Bristo-street.

Lecturers and fees.—Winter Session: Anatomy, Practical Anatomy, and Demonstrations, Dr. Ryland Whitaker and Dr. R. J. A. Berry (£3 5*s.* and £4 4*s.*); Chemistry (Practical, &c.), Mr. King, Mr. Gemmell, Mr. Kerr,* and Dr. T. W. Drinkwater; Physiology (Institutes of Medicine), Dr. Noël Paton (£3 5*s.*); General Pathology, &c., Dr. Russell, Dr. Shennan, and Dr. Stuart McDonald (£3 5*s.*); Biology, Mr. A. T. Masterman and Miss Newbigin (£3 5*s.*); Zoology, Mr. Masterman and Miss Newbigin; Bacteriology, Dr. Taylor Grant, Dr. Theodore Shennan, and Dr. Stewart McDonald; Practice of Physic, Dr. James, Dr. Bramwell, Dr. Gibson, Dr. Bruce, Dr. Philip, and Dr. R. A. Fleming (£3 5*s.*); Surgery, Mr. Caird, Mr. Hodsdon, Mr. Thomson, Mr. Wallace, Mr. Miles, and Mr. Scot Skirving (£3 5*s.*); Materia Medica, &c. Dr. Craig† and Dr. W. Wood (£3 5*s.*); Midwifery, &c., Dr. Hart, Dr. Murray, Dr. Haultain, Dr. Ballantyne, Dr. Fordyce, and Dr. Jessie MacGregor (£3 5*s.*); Medical Jurisprudence, &c., Dr. Littlejohn and Dr. Aitchison Robertson (£3 5*s.*); Public Health, Dr. Aitchison Robertson and Dr. C. J. Lewis; Hospital Practice (Edinburgh Royal Infirmary): Physicians, Dr. Smart, Dr. James, Dr. Bramwell, and Dr. Gibson; Surgeons, Dr. MacGillivray, Mr. Cotterill and Mr. Cathcart (perpetual ticket, £12); Clinical Medicine, Dr. Smart, Dr. James, Dr. Byrom Bramwell, and Dr. Gibson (£3 5*s.*); Clinical Surgery, Dr. Macgillivray, Mr. Cotterill, and Mr. Cathcart (£3 5*s.*); Diseases of the Chest, Dr. Philip† and Dr. Lovell Gulland (£2 2*s.*); Vaccination, Dr. Buist† and Dr. Cadell (£1 1*s.*); Diseases of Ear, Nose, and Throat, Dr. Logan Turner and Dr. J. Malcolm Farquharson (£2 2*s.*); Diseases of the Eye, Dr. G. Mackay† and Dr. Sym† (£2 2*s.*); Gynæcology, Dr. Croom (Systematic), Dr. Brewis, and Dr. J. Haig Ferguson (Clinical), and Dr. Berry Hart (Advanced) (£2 2*s.*); Diseases of the Blood, Dr. G. Lovell Gulland; Neurology, Dr. J. J. Graham Brown, (£2 2*s.*); Diseases of the Chest, Dr. Philip and Dr. Lovell Gulland (£2 2*s.*); Medical Electricity, Dr. Dawson Turner (£2 12*s.* 6*d.*); Fevers, Dr. Claude B. Kerr. Summer Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker and Dr. R. J. A. Berry (£2 2*s.*); Practical Physiology, Dr. Paton (£3 3*s.*); Biology, Mr. Masterman‡ and Miss Newbigin (£3 3*s.*); Practical Chemistry and Analytical Chemistry, Mr. King, Mr. Gemmell, Mr. Kerr, and Mr. Drinkwater§; Practical Bacteriology, Dr. Shennan, Dr. Taylor Grant and Dr. Stuart McDonald; Diseases of the Eye, Dr. Mackay‡ and Dr. Sym (£2 2*s.*); Medical Psychology and Insanity Sir J. Batty Tuke and Dr. Robertson (£2 2*s.*); Medical Jurisprudence, Dr. Littlejohn and Dr. Aitchison Robertson; Gynæcology, Dr. Brewis and Dr. Ballantyne (£2 2*s.*); Midwifery Dr. Croom, Dr. Barbour, Dr. Ferguson, Dr. Ballantyne, Dr. Fordyce, and Dr. Jessie MacGregor (£3 5*s.*); Operative Surgery, Mr. Caird, Mr. Hodsdon, Mr. Alexis Thomson, Mr. David Wallace, and Mr. Alex. Miles (£3 3*s.*); Practical Pathology, Dr. Russell, Dr. Shennan, and Dr. Stuart McDonald (£3 3*s.*); Physics, Dr. Turner‡ (£3 3*s.*); Practical Medicine and Physical Diagnosis, Dr. Philip, Dr. Fleming, and Dr. Lovell Gulland (£3 3*s.*); Practice of Medicine, Dr. Smart, Dr. James, Dr. Bramwell, and Dr. Gibson (£2 2*s.*); Neurology, Dr. Bruce and Dr. Graham Brown; Diseases of Ear, Nose, and Throat, Dr. Logan Turner and Dr. Malcolm Farquharson; Fevers, Dr. Claude B. Kerr.

Special Classes for Women, Winter Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£4 4*s.*); Chemistry (Lectures and Practical), Mr. J. Kerr (£3 5*s.* and £3 3*s.*); Practice of Physic, Dr. Philip (£3 5*s.*); Surgery, Mr. J. W. Dowden (£3 5*s.*); General Pathology, Dr. Russell (£3 5*s.*); Physiology (Institutes of Medicine), Dr. Noël Paton (£3 5*s.*); Materia Medica, &c., Dr. Craig (£3 5*s.*); Clinical Medicine, Dr. Alexander Bruce, Royal Infirmary (£3 5*s.*); Clinical Surgery, Mr. Caird, Royal Infirmary (£3 5*s.*); Physics, Dr. Dawson Turner (£3 3*s.*); Biology, Miss Newbigin (£3 3*s.*); Vaccination, Dr. Buist and Mr. Cadell (£1 1*s.*); Practical Gynæcology, Dr Brewis (£2 2*s.*); Diseases of the Eye, Dr. George Mackay; Bacteriology, Dr. J. Taylor Grant; Fevers, City Hospital. Summer Session: Practical Anatomy, Dr. Ryland Whitaker (£2 2*s.*); Practical Chemistry, Mr. J. Kerr (£3 3*s.*); Materia Medica, &c., Dr Craig (£3 3*s.*); Operative Surgery and Surgical Anatomy, Mr. J. W. Dowden (£3 3*s.*); Materia Medica and Therapeutics, Dr. Wm. Craig (£3 3*s.*); Medical Jurisprudence and Public Health, Dr. Harvey Littlejohn and Dr. C. J. Lewis (£3 5*s.*); Clinical Medicine, Dr. Alexander Bruce; Clinical Surgery, Mr. Caird, Royal Infirmary (£3 5*s.*); Practical Physiology and Histology, Dr. Paton (£3 3*s.*); Practical Pathology, Dr. Russell (£3 3*s.*); Biology, Miss Newbigin (£3 3*s.*); Physics, Dr Dawson Turner (£3 3*s.*); Ophthalmology, Dr. Mackay (£2 2*s.*); Insanity, Sir J. Batty Tuke and Dr. G. M. Robertson (£2 2*s.*); Practical Gynæcology, Dr. Brewis (£2 2*s.*); Practical Medicine, Dr. Philip and Dr. G. Lovell Gulland; Vaccination, Dr. Buist.

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £115, payment of which is distributed over the period of study.

Further particulars regarding the school, also its calendar, may be had on application to Mr. R. N. Ramsay, the Secretary, 27, Forrest-road, Edinburgh.

* Lectures, £3 5*s.*; Practical, £3 3*s.*; Analytical, £2 a month, or £5 for three months. † Also in Summer Session. ‡ Also in Winter Session. § Practical, £3 3*s.*; Analytical, £2 a month, or £5 for three months.

N.B.—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined, but each gives an independent course.

ANDERSON'S COLLEGE MEDICAL SCHOOL, Glasgow.—This medical school was founded in the year 1800. It has given thirteen professors to the University of Glasgow. The following courses are given, which qualify for all the licensing boards and for the Universities of London, Durham, Ireland, Edinburgh, and Glasgow (the latter two under certain conditions):—In winter: Anatomy, Professor A. M. Buchanan; Chemistry, Professor J. Robertson Watson; Physics, Professor Peter Bennett; Botany, Professor B. G. Cormack; Zoology, Professor Geo. Bell Todd; Physiology (vacant); Surgery, Professor T. Kennedy Dalziel; Practice of Medicine, Professor R. S. Thomson. Diseases of Women, Professor John Edgar; Materia Medica, Professor R. Barclay Ness; Ophthalmic Medicine and Surgery, Dr. T. Spence Meighan; Aural Surgery. Dr. J. Galbraith Connal; Diseases of Throat and Nose, Dr. John Macintyre. In summer: Practical Anatomy, Practical Anatomy and Osteology, Practical Chemistry, Physics, Zoology, Practical Materia Medica and Pharmacy, Practical Physiology. Operative Surgery, Botany, Ophthalmic Medicine and Surgery, also Medical Jurisprudence (Professor Carstairs Douglas, and Mental Diseases (Dr. Carswell), and Aural Surgery. The Chemical Laboratory is open daily from 10 to 6. The Dissecting-room is open in winter from 9 A.M. to 6 P.M., and in summer from 6 A.M. to 6 P.M. The students are assisted in their dissections by the Professor and Demonstrators, by whom frequent examinations and demonstrations on the parts dissected are conducted. The supply of subjects for dissection is ample, and students are consequently provided with parts as soon as they may be ready for them. The Dissecting-room is provided with a complete series of dissected specimens, mounted in plaster of Paris, illustrating the anatomy of the human body. Candidates for the Licence in Dental Surgery can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are conducted at the Glasgow Dental Hospital and School.

The new buildings are situated in Dumbarton-road, immediately to the west of the entrance to the Western Infirmary, within two minutes' walk of it, and four minutes' walk of the University. Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Physiology, Practical Pharmacy, and Operative Surgery. There are also provided a large library and reading-room and a students' recreation-room.

Fees.—For each course of Lectures (Anatomy, Ophthalmic Medicine and Surgery, Aural Surgery, Diseases of Throat and Nose, and Mental Diseases excepted), first session, £2 2*s.*; second session (in Anderson's College), £1 1*s.*; afterwards free. For Practical Classes (except Anatomy)—viz., Chemistry, Botany, Zoology, Physiology, Pharmacy, and Operative Surgery—first session, £2 2*s.*; second session, £2 2*s.* Reduced joint fees in Zoology and in Botany, for Lectures and Practical Class when taken in same summer session, £3 3*s.*; for either course separately, £2 2*s.* Anatomy Class Fees: Winter, first session (including P[illegible] 4*s.*; second session (including P[illegible]: third session, £2 2*s.* To those wh[illegible] courses of Practical Anatomy the fee will be £1 1*s.* *Summer*, Lectures and Practical Anatomy, £2 12*s.* 6*d.*; Lectures alone, £1 11*s* 6*d.*; Practical Anatomy alone, £1 1*s.*; Osteology and Practical Anatomy, £2 12*s.* 6*d.*; Osteology alone, £1 11*s.* 6*d.* Students who have attended classes at other schools, and who desire to pursue their studies at Anderson's College Medical School, will be admitted to such classes as they may have attended elsewhere at the reduced fees. Ophthalmic Medicine and Surgery (including Hospital Practice), Aural Surgery, Diseases of Throat and Nose, and Mental Diseases, £1 1*s.* each course. Matriculation Fees: Winter, 10*s.* to those taking out two or more classes; 5*s.* to those taking out only one class. The fee of 10*s.* represents a combined fee for the winter and summer sessions. Summer, 5*s.*, except to those who have paid a fee of 10*s.* for the Winter Session.

Western Infirmary.—Fees: For Hospital Attendance, first year, £10 10*s.*; afterwards free. For each Clinical Class, in winter, £3 3*s.*; in summer, £2 2*s.* After three such annual payments of £5 5*s.* the fee for each Clinical Class will be £1 1*s.* Pathology: first course, £3 3*s.*; second course, £2 2*s.* Vaccination fee, £1 1*s.*

Royal Infirmary.—Fees: Hospital Practice and Clinical Instruction, first year, £10 10*s.*; second year, £10 10*s.*; afterwards free. Six months, £6 6*s.*; three months, £4 4*s.*; Pathology, both courses, £4 4*s.* Vaccination Fee, £1 1*s.*

Attendance at the dispensaries of the Western and Royal Infirmaries is included in the hospital fee.

Eye Infirmary.—Fee: Hospital Practice and Clinical Instruction, including Lectures at the college, six months, £1 1*s*

Maternity Hospital.—Fee for six months, £2 2*s.*

Fever Hospital.—Fee, £1 1*s.*

Hospital for Skin Diseases.—Fee, £1 1*s.*

Certificates of attendance on the lectures at Anderson's College Medical School are received by the Universities of London, Durham [illegible] Glasgow (the latter two under [illegible] Royal Colleges of Physicians of [illegible] by the Royal Colleges of Surg[illegible] and Ireland; by the Royal [illegible] Ireland; by the Faculty of Physicians and Surgeons of Glasgow; by the Society of Apothecaries, London; and by the Army, Navy, and East India Boards. Communications relating to the Medical School to be addressed to the Secretary of the Medical Faculty, Anderson's College Medical School, Dumbarton-road, Partick, Glasgow. Communications relating to the Preliminary Examination in General Education to be addressed to Mr. Alexander Mackay, Educational Institute Office, 40, Princes-street, Edinburgh. Communications relating to the Triple Qualification to be addressed to Mr. Alexander Duncan, Faculty Hall, 242, St. Vincent-street, Glasgow. Communications relating to the Dental School to be addressed to Mr. D. M. Alexander, 97, West Regent-street, Glasgow.

The Kerr Bursary in Anatomy (value about £10) is open to students of the Junior Anatomy Class during Winter Session 1902-1903.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—This College was incorporated in 1889. The Glasgow Royal Infirmary was founded in 1791. The Faculty of Medicine of the College occupies new buildings erected for the purposes of a medical school, adjoining and communicating with the Royal Infirmary. The Laboratories, Museums, and Lecture-rooms are equipped and adapted to modern scientific requirements. Recent additions consist of Public Health, Practical Zoology, and *Bacteriological Laboratories. The Royal Infirmary, which* is at the service of the College for the purpose of clinical and practical instruction, is one of the largest general and special hospitals in the kingdom. It has nearly 600 beds, and will almost immediately have considerably over 600. It has special wards for Diseases *Peculiar* to Women, for Venereal Diseases, Erysipelas, Burns, and Diseases of the Throat and Nose. At the Dispensary special advice and treatment are given in diseases of the Eye, Ear, Teeth, and Skin, Women, Throat and Nose, in addition to the large and varied number of ordinary medical and surgical cases—over 46,000 per annum—which in a great industrial centre daily require attention. Students of the College and Hospital get the benefit of dispensary experience free of charge. All appointments are open There are five Physicians' and seven Surgeons' Assistants, who board in the hospital free of charge and act in the capacity of House Physicians and House Surgeons. These appointments are made for six months and are open to gentlemen who have a legal qualification in Medicine or Surgery, and preference is given to the students of this College and Hospital. Clerks and Dressers are appointed by the Physicians and Surgeons. From the *large number of cases of acute disease and accidents of* varied character received into this hospital these appointments are very valuable. In the Pathological Department [illegible] will open with an [illegible] e buildings. [illegible] c Institution in [illegible] with the Royal [illegible] t is very much increased, and greater opportunities are afforded to students for the practical study of Diseases of the Eye. Dr. Ramsay, the ophthalmic surgeon, attends the Royal Infirmary every Monday, Wednesday, and Friday at 12 noon, and daily at the Institution in West Regent-street from 1 to 2 o'clock. Students can attend both without payment of any additional fee. Lectures are delivered twice a week during the winter session. Fee for the course, £2 2*s.*

Electrical Department.—The new pavilion has been fully equipped with the most modern apparatus for the diagnosis and treatment of medical and surgical cases. Consulting Medical Electrician: Dr. John Macintyre. Medical Electrician: Mr. James Riddell. Patients are seen from 9 to 11 A.M. daily.

Psychological Medicine.—Practical instruction is given in Woodilee Asylum, situated within a short distance of Glasgow and having accommodation for 850 patients. Six resident clinical clerks are appointed annually. These clerkships are open to students attending St. Mungo's College.

C[illegible] Dr. [illegible] Hos[illegible] patients. [illegible] The close proximity of [illegible] the [illegible] co[illegible] su[illegible] for [illegible] under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years), and Preliminary Examination, are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

The fee for each class is £2 2*s.*, except Zoology and Botany, joint fee £3 3*s.*, Anatomy, Winter Session, £4 4*s.*, Pathology £4 4*s.*, Physics, £2 4*s.* 6d., and certain extra classes, for which the fee is £1 1*s*. The hospital fee (including clinical lectures) is £21 for a perpetual ticket. The classes in St. Mungo's College and in the Glasgow Royal Infirmary are for male students exclusively. The minimum fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons amount to £65. Further particulars can be obtained from a syllabus which can be obtained free on application to the Dean, 86, Castle-street, Glasgow.

Glasgow Western Medical School.—This School is situated in University-avenue, close to the University and Western Infirmary. Lectures and Demonstrations are given on Chemistry, on Physics, on Zoology, on Anatomy, on Surgery, on Physiology, on Midwifery and Gynæcology, on Pathology, on Medicine, and on the Eye.

Class Fees.—For each course of Lectures the fee is £2 2*s*., or in some cases £1 1*s*. There is no matriculation fee.

Queen Margaret College, University of Glasgow.—Queen Margaret College was founded in 1883 by the Glasgow Association for the Higher Education of Women (instituted in 1877), and handsome buildings and grounds near the University were presented to the College in 1884 by Mrs. John Elder. In 1890 a School of Medicine for women was added to its Arts Faculty. In 1892, when the Universities Commissioners issued an ordinance empowering the Scottish University Courts to make provision for the instruction of women, the Council of the College and Mrs. Elder transferred to the University the College, its buildings, grounds, and endowments, on condition that these should be devoted to the maintenance of University classes for women only. The College then became the women's department of the University of Glasgow; its classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The number of students enrolled in session 1902–1903 was 360, of whom 80 were studying medicine and the rest arts or science. The School of Medicine is a special feature of the College and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish university, women students graduated in medicine at the "capping" in Glasgow University. 85 women have now taken the degree of M.B., C.M. or M.B., Ch.B. of the University of Glasgow. Excellent facilities for clinical work are given in the Royal Infirmary and other hospitals. By a gift of £5000 granted for the purpose by the Bellahouston Trust, the University Court was enabled to add to the College a large building for the study of Anatomy and Physiology, which was opened in October, 1895 The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. A house of residence for the students of the College coming from a distance was opened by the Queen Margaret Hall Co., Limited, in October of 1894. The winter session commences on Oct. 15th.

University College, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. The complete medical curriculum can be taken in Dundee. For classes, fees, &c., see under University of St. Andrews.

Royal Infirmary, Dundee.—The Infirmary contains 300 beds, including special wards for the Diseases of Women, Children, Eye, Ear and Throat, and Obstetric cases. There is in addition an Extern Obstetric Department. There were during last year 13,052 out-patients and 6580 home patients. The Royal Infirmary offers exceptional facilities for practical work to students. Appointments: Four qualified Resident Medical Assistants are appointed every six months. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry. Further information can be obtained from Dr. Fraser, Medical Superintendent.

Royal Asylum, Dundee.—Lectures on Mental Diseases and clinical instruction in connexion with University College, Dundee (University of St. Andrew's), are given at the University College and at the Royal Asylum by Dr. Rorie. There are two paid qualified Resident Assistants and two unpaid Resident Clinical Assistants. The last Summer Session began on April 22nd, 1903, and the course consisted of 12 Lectures at University College and 14 Clinical Lectures and Demonstrations at the Royal Asylum Present Medical Assistants: Dr. Wm. Tuach and Dr. J. H. Shepherd. Clinical Assistants: Mr. Wm. H Simpson and Mr. T. J. Mitchell. The next session will begin on April 21st, 1904

Aberdeen Royal Lunatic Asylum.—Contains, with hospital attached to main institution and Agricultural Branch, about 986 beds. Medical Superintendent: Dr. William Reid. Assistant Physicians: Dr. H. de M. Alexander, Dr. Alexander Watt, and Mr. Reg. A. Forster. Clerk, Treasurer, and Factor: Mr. J. B. Findlay. Clinical instruction is given to students during three months in summer.

Aberdeen Royal Infirmary.—Contains 240 beds. Consulting Physician: Dr. P. Blaikie Smith. Physicians: Dr. Angus Fraser, Professor Finlay, and Dr. George M. Edmond. Assistant Physicians: Dr. John Gordon, Dr. A. H. Lister, and Dr. Ashley W Mackintosh. Consulting Surgeons: Professor Alexander Ogston, Dr. J. C. O. Will, and Dr. R. J. Garden. Surgeons: Dr. J. McK. Booth, Dr. J. S. Riddell, and Dr. John Marnoch. Assistant Surgeons: Dr. H. M. W. Gray, Dr. John W. Milne, and Dr. Henry Peterkin Ophthalmic Surgeon: Dr. C. H. Usher. Gynæcologist: Professor W. Stephenson. Pathologist: Professor David James Hamilton. Assistant Pathologist: Dr. G M. Duncan. Dental Surgeon: Dr. J. M. P. Crombie. Anæsthetist: Dr. J. J. Y. Dalgarno. Assistant Anæsthetist: Dr. W. R. Pirie. Medical Electrician: Dr. J. R. Levack. Clinical Registrar and Lecturer on Diseases of the Skin: Dr. J. F. Christie. Medical Superintendent: Dr. William Sinclair. Clerk and Treasurer, and Factor for the Hospital Lands: Mr. John B. Findlay, 343, Union-street, Aberdeen.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

Royal Infirmary, Edinburgh.—Beds are set apart for clinical instruction by the professors of the University of Edinburgh. Courses of Clinical Medicine and Surgery are also given by the ordinary physicians and surgeons. Special instruction is given in the medical department on Diseases of Women, Physical Diagnosis, and on Diseases of the Skin; and in the surgical department on Diseases of the Eye, the Ear, the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the Eye, the Ear, and the Skin, and also to cases of Incidental Delirium or Insanity. Three wards are specially set apart for Clinical Instruction to Women Students. Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology. The fees for hospital attendance are as follows—viz.: Perpetual ticket, in one payment, £12; annual ticket, £6 6*s*.; six months, £4 4*s*.; three months, £2 2*s*.; monthly, £1 1*s*. Separate payments amounting to £12 12*s*. entitle the student to a perpetual ticket. No fees are paid for any medical or surgical appointment. The appointments are as follows:—1. Resident physicians and surgeons are appointed, and live in the house free of charge. The appointment is for six months, but may be renewed at the end of that period by special recommendation. 2. Non-resident house physicians and surgeons and clinical assistants are appointed for six months. The appointment may be renewed for a like period by special recommendation. 3. Clerks and dressers are appointed by the physicians and surgeons. These appointments are open to all students and junior practitioners holding hospital tickets. 4. Assistants in the Pathological Department are appointed by the pathologist.

Staff: Medical Department.—Consulting Physicians: Dr. Claud Muirhead and Dr. J. O. Affleck. Consulting Gynæcologist: Sir J. Halliday Croom. Professors of Clinical Medicine: Sir T. R. Fraser, Dr. W. S. Greenfield, and Dr. John Wyllie. Ordinary Physicians and Lecturers on Clinical Medicine: Dr. Andrew Smart, Dr Alex. James, Dr. Byrom Bramwell, Dr. Geo. Gibson, and Dr. Alex. Bruce.

Gynæcologists Professor A R Simpson and Dr D Berry Hart Physician for Diseases of the Skin Dr Allan Jamieson Medical Electrician Dr Dawson Turner Assistant Physicians Dr R W Philip, Dr William Russell, Dr Murdoch Brown, Dr G Lovell Gulland, Dr J J Graham Brown, Dr Francis D Boyd and Dr A. Fleming Assistant Gynæcologists Dr A H F Barbour, Dr Milne Murray, and Mr N T Brewis Assistant Physician for Diseases of the Skin Dr Norman Walker Assistant Medical Electrician Dr Hope Fowler Medical Registrar Dr A Lockhart Gillespie

Surgical Department —Consulting Surgeons Sir P H Watson Mr Joseph Bell, Mr A G Miller and Dr P H Maclaren Consulting Dental Surgeon Dr John Smith Consulting Ophthalmic Surgeon Dr Argyll Robertson Consulting Aural Surgeon Dr P MacBride Regius Professor of Clinical Surgery Mr Annandale Professor of Surgery Mr Chiene Ordinary Surgeons Dr C W MacGillivray Mr J M Cotterill, Mr C W Cathcart, and Mr F M Caird Ophthalmic Surgeons Mr George A. Berry and Dr George Mackay Surgeon to Ear and Throat Department Dr R M Kenzie Johnston Dental Surgeons Mr William Guy and Mr J H Gibbs Assistant Surgeons Mr Hodsdon Mr D Wallace Mr Alexis Thomson Mr Alexander Miles and Mr J W Dowden Assistant Ophthalmic Surgeons Dr William George Sym and Dr J V Paterson Assistant Surgeon to the Ear and Throat Department Dr A Logan Turner Pathologist Dr Theodore Shennan Assistant Pathologists Dr Stuart M Donald and Dr J M Beattie Surgical Registrar Dr Scott Carmichael Superintendent Colonel W P Warburton, I M S (retired), M D, C S I

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes road, Edinburgh —This hospital, which has been recently built contains 120 beds, and is fitted with every modern improvement A fully equipped out patient department (medical and surgical) is conducted daily in a building adjoining the hospital Systematic courses of instruction which qualify for graduation in the Edinburgh University and elsewhere, are given from time to time throughout the year by the staff Students may enter at any time Full particulars can be obtained from the Registrar at the hospital

EYE EAR, AND THROAT INFIRMARY OF EDINBURGH 6 Cambridge street, Lothian road —Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases, Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 P M for outdoor Ear, Nose and Throat Patients Special Practical Ophthalmoscopic Classes by arrangement. Patients whose diseases require operations or more than ordinary care are accommodated in the house Consulting Surgeon Dr Joseph Bell Surgeons Dr William George Sym, Dr Logan Turner, Dr Malcolm Farquharson, Dr John Cumming and Dr J V Paterson Dental Surgeon Mr G W Watson Treasurer and Secretary Mr J P Watson, W S, 13, Hill street

GLASGOW WESTERN INFIRMARY —This hospital adjoins the University of Glasgow Number of beds upwards of 420 Special wards are set apart for Diseases of Women and for Affections of the Skin In the out patient department there are special cliniques for Diseases of Women and for Diseases of the Throat, Ear and Teeth The Clinical Courses are given by the Physicians and Surgeons each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom In the Pathological Department the course is both systematic and practical, also post graduate courses, and extends through the winter and following summer, these are likewise recognised by the University for graduation Ten resident assistants are appointed annually, without salary, from those who have completed their course The fee for hospital attendance is £10 10*s* and the fees for clinical instruction are £3 3*s* for Winter Session and £2 2*s* for Summer Session

Staff —Honorary Consulting Physicians Dr G P Tennant and Sir W T Gairdner, K C B Visiting Physicians Professor T McCall Anderson Dr J Finlayson Dr S Gemmell, and Dr R Stockman Physicians for Diseases of Women Professor M Cameron and Dr W L Reid Assistant Physicians Dr J Alexander, Dr W G Dun, Dr R S Thomson and Dr R B Ness Dispensary Physicians Dr W R Jack, Dr H E Jones, Dr Hugh Galt, Dr Jas Carslaw, Dr John M Cowan, and Dr John S M Kendrick Dispensary Physicians for Diseases of Women Dr R Kirk Dr J M M Kerr and Dr E H L. Oliphant Honorary Consulting Ophthalmic Surgeon Dr T Reid Honorary Consulting Surgeons Dr Geo Buchanan and Dr Alex Patterson Visiting Surgeons Professor Sir Hector C Cameron Professor Sir W Macewen Dr J C Renton Dr G T Beatson C B and Dr T K Dalziel Assistant Surgeons Dr J H Nicoll, Dr D Macartney, Dr R Kennedy Dr A A Young and Dr G B Buchanan Dispensary Surgeons Dr J Morton Dr G H Edington, and Dr F Macrae Extra Dispensary Physicians Dr Robt Fullerton and Dr J Campbell M'Clure Dispensary Aural Surgeon Dr T Barr Extra Dispensary Surgeons Dr Alex MacLennan and Dr Arch Young Dispensary Throat Surgeon Dr J W Downie Vaccinator Dr J W Nicol Pathologist Professor R Muir Assistant Pathologist A R Ferguson Dental Surgeon W D Woodburn Medical Superintendent Dr D J Mackintosh M V O Visiting Surgeons Professor Sir Hector C Cameron, Professor Sir W Macewen Dr J O Renton, Dr G T Beatson C B, and Dr T Kennedy Dalziel Dispensary Surgeons Dr J Morton Dr G H Edington, and Dr Farquhar Macrae

ROYAL HOSPITAL FOR SICK CHILDREN Glasgow —The Hospital at Garnethill was opened in December, 1882 and in June, 1903 a country branch consisting of two wards was opened at *Drumchapel The number of beds in* the town hospital and country branch together is 100 A specially designed Dispensary or Out patient Department, was opened in October, 1888, in West Graham street. The whole institution is for non infectious cases and is available to medical students for clinical instruction in the disease peculiar to childhood Classes are formed both at Hospital and Dispensary at the beginning of the University session in October Students may be enrolled at any time Fee £1 1*s* per annum admitting to both Hospital and Dispensary Particulars on applying to the House Surgeon 45 Scott street, Garnethill, Glasgow

GLASGOW OPHTHALMIC INSTITUTION, 126 West Regent-street (29 beds and six cots) —Clinical and systematic course of lectures for students during the winter and summer sessions In patients 1062, out- or dispensary patients 6482 Operations on Wednesdays and Saturdays Honorary Consulting Surgeon Dr D N Knox. Surgeon Dr A Maitland Ramsay Assistant Surgeon Dr John Rowan Junior Assistant Surgeons Dr Hugh Walker, Dr H Wright Thomson, and Dr John Gilchrist Pathologist Dr Hugh Walker Bacteriologist Dr J Campbell McClure Electrician Dr John Gilchrist House Surgeon Dr William Rodger This institution is the Ophthalmic Department of the
Royal I [illegible] is given by
Dr Rams [illegible] and December
Clinical [illegible] mer session to
students [illegible] ret College and
in winter to students of St Mungo s College and to all who take the class

GLASGOW EYE INFIRMARY, Berkeley street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824 The Infirmary now consists of two large buildings—that in Berkeley street being occupied as the *Infirmary proper, and that in Charlotte-*street (new buildings opened June, 1894) as a dispensary The Infirmary is devoted exclusively to the treatment of Diseases of the Eye, and is intended primarily to provide treatment, and, when necessary, board and lodging, for those who are unable to do so for themselves The average number of new patients for the last ten years has
been [illegible] eated in 1902
was [illegible] —Surgeons
Dr [illegible] Dr Andrew
Wils [illegible] Buchanan,
Dr [illegible] rgeons Dr
A Lewis M Millan, Dr Henry *L G Leask, Dr* W Cochrane Murray, Dr Brownlow Riddell, Dr James D Cochran, Dr Arthur J Ballantyne. Pathologist Dr

Leslie Buchanan. House Surgeon: Dr. John B. Stewart. Assistant House Surgeon: Dr. James G. Nicolson.

Regulations as to Attendance of Students.—(1) Gentlemen may attend as students on payment to the treasurer of the following fees:—For six months £1 1*s.*, twelve months £2 2*s.* (2) All students when duly entered in the Infirmary Register may attend the clinical instruction of any or every member of the medical staff on production of their tickets. The days on which the surgeons respectively attend to receive patients may be ascertained at the Infirmary. Students have the privilege of being present in the Dispensaries at such hours as are arranged. They may enter the wards along with the surgeon whose clinique they are attending when he visits his patients. They may also be present at operations under the sanction of the surgeon operating, but no student may enter the wards or operating-room except under the aforesaid regulation. Students may be allowed the use of the journals and case-books for examination on applying to the House Surgeon. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. Secretary and acting Treasurer: William George Black, 88, West Regent-street. Medical session begins in April.

IRISH SCHOOLS OF MEDICINE.[1]

ROYAL COLLEGE OF SURGEONS IN IRELAND (SCHOOLS OF SURGERY).—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for nearly a century. They are carried on within the College buildings and are specially subject to the supervision and control of the Council, who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued. The buildings have been reconstructed, the capacity of the dissecting-room nearly trebled, and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. A refreshment-room is now open where students can have luncheon. There are special rooms set apart for lady students. The entire building is heated by hot-water pipes and lighted throughout by the electric light. Winter Session commences Oct. 1st. Prospectuses and guide for medical students can be obtained post free on application to the Registrar, Royal College of Surgeons, Stephen's-green, W., Dublin.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Belfast.—Ten Junior Scholarships have been founded in the Faculty of Medicine of the annual value of £20 each. Two are tenable by matriculated students, of the first, second, third, fourth, and fifth years of their course respectively. The examinations for Scholarships take place at the commencement of the session. Class Prizes are awarded at examinations which take place at the close of the session. The Exhibitions, &c., of the Royal University of Ireland are also open to students. Lectures in Medicine at Queen's College, Belfast, will commence on Oct. 20th and end on March 30th. The Summer Medical Classes will begin on May 2nd, except Botany and Practical Biology, which begins on April 13th. The new Chemical Buildings contain, in addition to a large class-room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark-room for photographic purposes, balance room, &c., provided with all modern appliances. Special facilities are given to those who wish to pursue original research. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The medical museum is in the same building. The physiological department (opened in 1896) comprises (1) a large and well-lighted class-room for practical physiology and histology, fitted with motor and shafting, and with arrangements for lantern projection; (2) a laboratory for chemical physiology; (3) an apparatus-room; (4) a dark room; (5) private research-rooms; and (6) a centrifuge-room. The pathological laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The pharmaceutical laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines. Clinical instruction is given at the Royal Victoria Hospital, the medical staff of which is as follows:—Physicians: Sir William Whitla, Professor James A. Lindsay, Dr. William Calwell, and Dr. H. L. McKisack. Surgeons: Mr. J. Walter Browne, Professor T. Sinclair, Mr. A. B. Mitchell, and Mr. T. S. Kirk. Gynæcologist: Professor J. W. Byers. Surgeon for Diseases of the Eye, Ear, and Throat: Dr. Joseph Nelson. Pathologist: Professor J. Lorrain Smith. Assistant Physician: Dr. W. B. McQuitty and Dr. J. S. Morrow. Assistant Surgeons: Mr. Robert Campbell and Mr. Andrew Fullerton. Assistant to the Gynæcologist: Mr. R. J. Johnstone. Assistant Surgeon Eye, Ear, and Throat Department: Mr. James A. Craig. Assistant to the Pathologist: Dr. R. M. Beatty. Administrators of Anæsthetics: Dr. V. G. L. Fielden and Dr. H. Monypeny. Registrars: Dr. Thomas Houston and Dr. Howard Stevenson. The Ulster Hospital for Diseases of Women and Children, the Maternity Hospital, the Ophthalmic Hospital, the Ulster Eye Ear, and Throat Hospital, the Hospital for Sick Children, and the District Lunatic Asylum are open to students. A pamphlet containing full information regarding the medical classes in Queen's College and the facilities for clinical instruction in the various hospitals, can be had free on application to the Registrar, Queen's College, Belfast, or to the Secretary, Medical Staff, Royal Victoria Hospital, Belfast.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Cork.—The building is provided with a very large, well-ventilated dissecting-room, supplied with electric light, with physiological, toxicological, pathological, and pharmaceutical laboratories, materia medica, anatomical and pathological museums, as well as a collection of surgical and obstetrical instruments and appliances. There are well-appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden. The plant houses are well filled with plants and are open to the students in the class of Botany.

Fees.—For Practical Anatomy and for Practical Chemistry, £3 each course; for Anatomy and Physiology, £3 first course, and £2 for each subsequent course. Other medical classes, £2 first course, and £1 each subsequent course.

Eight scholarships (value about £30 each), as well as several exhibitions and class prizes, are open to students in their first four years and the Blayney Scholarship, value £35, and a Senior Exhibition to students in their fifth year.

Students can attend the North and South Infirmaries, the Cork Union Hospital, the Cork Fever Hospital, the County and City of Cork Lying in Hospital, the Cork Maternity, the County and City of Cork Hospital for Diseases of Women and Children, the Cork Eye, Ear, and Throat Hospital, and the Cork District Lunatic Asylum.

Staff, North Infirmary.—Physicians: Dr. D. D. Donovan and Dr. E. Magner. Surgeons: Dr. Cotter, Dr. O. Y. Pearson, Dr. N. J. Hobart, and Dr. D. J. O'Mahony. Assistant Physician: Dr. R. B. Dalton. Assistant Surgeons: Dr J. Dundon and Dr. R. P. Byrne. Pathologist: Dr. Denis Murphy. House Surgeon: Dr. W. F. O'Connor. Surgeon Dentist: Mr. H. O'Keeffe.

Staff, South Charitable Infirmary.—Physicians: Dr. P. T. O'Sullivan and Dr. N. I. Townsend. Surgeons: Dr. H. R. Townsend, Dr. H. Corby, and Dr. T. G. Atkins. Ophthalmic Surgeon: Dr. A. W. Sandford. Extern Physicians: Dr. D. J. O'Flynn and Dr. E. W. Allsom. Extern Surgeon: Dr. R. P. Crosbie. House Surgeon: Dr. E V. Cantillon. Dentist: Mr. T. O. Butterfield.

---

[1] For Scholarships see page 705 et seq.

The Medical School of the Catholic University, Ireland, Dublin.—Founded in 1855, it is now the largest medical school in Ireland. It prepares students specially for the examinations of the Royal University and the Conjoint Colleges of [illegible] ctures and practical courses [illegible] ng Bodies in Great Britain [illegible] ordinary medical examinations it prepares students for the D.P.H. and for the various higher University examinations in Pathology, Physiology, Chemistry, &c. Six exhibitions and numerous gold and silver medals are offered annually for competition. The school opens for dissections on Oct. 1st; the winter lectures begin on Nov. 2nd. The Summer session commences on April 1st.

Queen's College School of Medicine, Galway.—There are eight Junior Scholarships in Medicine of the annual value of £25 each. Two are tenable by matriculated students of the first, second, third, and fourth years. The Council has power to award exhibitions for distinguished answering. Sessional prizes are offered in each subject A Senior Scholarship in Anatomy, value £40, the holder of which may be appointed Demonstrator, is offered annually for competition tenable for one year by a student who shall have attended the Medical School of the College for at least two sessions and shall have obtained a Degree in Arts or Medicine or a Diploma in Medicine from a Licensing Body. Scholarship examinations are held at the commencement and *those for Sessional Prizes at the close of each session.* The Medical lectures are recognised by the Royal University of Ireland and the various Licensing Bodies in the United Kingdom. The College contains well lighted and ventilated dissecting room and anatomical lecture theatre; physiological, pharmaceutical, chemical, and physical laboratories; anatomical, pathological, gynæcological, and materia medica museums; as well as a large natural history and geological museum and an extensive library in which students can read and from which they can borrow books. Clinical instruction is given in the Galway Hospital and in the Galway Union and Fever Hospitals, the following constitute the medical staff of the Galway Hospital.—Physicians: Professor Kinkead and Professor Lynham Surgeons: Professor Pye, Professor Colahan, and Professor Brereton. Gynæcologist: Professor Kinkead. House Surgeon: Mr. Quirke. Instruction at the Galway Union and Fever Hospital is given by *Professor Colahan and Mr. Lyden. There are extensive* grounds a portion of which is occupied by a Botanic Garden and a part is at the disposal of the College Athletic Union. A prospectus containing full information as to courses of lectures, scholarships, and fees for classes can be obtained on application to the Registrar, Queen's College, Galway.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

Adelaide Medical and Surgical Hospitals, Peter-street, Dublin.—*Fee* for nine months' hospital attendance, £12 12*s.*; six months, £8 8*s.* Summer, three months, £5 5*s.*

Staff.—Physicians: Dr. James Little, Dr. Wallace Beatty, and Dr. H. T. Bewley. Surgeons: Dr. F. T. Heuston and Dr. T. E. Gordon. [illegible] Ophthalmic Surgeon [illegible] S Horace Law. F [illegible] red Scott. Dental Surgeons: Dr. Theodore Stack and Mr. John Stanton. Assistant Physician: Dr. G. Peacocke. Assistant Surgeon: Dr. K. E. Levison-Gower Gunn. House Surgeon: Dr. W. Geoffrey Harvey.

A resident surgeon is elected yearly and three resident pupils half yearly. At the termination of the session prizes in Clinical Medicine and Surgery and in Obstetric Medicine will be awarded.

Hudson Scholarship.—In addition to the junior prizes the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10, together with a silver medal, will be awarded at the end of the session for proficiency in Clinical Medicine and Medical Pathology, Clinical Surgery and Surgical Pathology, Pathological Histology, Surgical Appliances, including instruments and bandaging, Ophthalmology and Gynæcology.

The certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. Further particulars may be obtained from Mr. F. T. Heuston.

Coombe Lying-in Hospital and Guinness Dispensary for the Treatment of Diseases Peculiar to Women, Dublin.—This hospital contains nearly 70 beds and consists of two divisions, one of which is devoted to lying-in cases and the other to the treatment of the diseases peculiar to women. The maternity department is one of the largest in Ireland, 3000 cases being annually treated either as intern or extern patients. Lectures are delivered in the hospital and clinical instruction is given daily at the bedside. There are two large dispensaries connected with the institution, at one of which *instruction is given on the* General Diseases of Women and Children, and in the other on the Diseases Peculiar to Women. There is accommodation for a limited number of intern pupils, who enjoy exceptional advantages of acquiring a practical knowledge of this branch of their profession. Clinical Clerks are [illegible] tion. Fees (six months' course): extern pupils, 8 guineas, half payable in advance; intern pupils, 18 guineas for six months' residence. The fees for monthly intern pupils are £4 4*s.* for first month and £3 3*s.* for each succeeding month. Lady students, £5 5*s.* first month and £4 4*s.* each succeeding month. Intern pupils enjoy exceptional advantages of acquiring a practical knowledge of this branch of their profession. Registration fee on entrance, 10*s.* 6*d.* Students can enter for attendance at any time. Further particulars may be had on application to the Master or the Registrar at the hospital.

Staff.—Consulting Physicians: Sir John Banks, Sir John W. Moore, and Dr. J M Redmond. Consulting Surgeons: *Dr. F. T. Heuston and Dr. F. W. Kidd. Pathologist:* Dr. E J. McWeeney. Pathological Analyst: Sir C. A. Cameron. Master: Dr. T. G Stevens. Assistant Masters: Dr. Trevor N. Smith and Dr. M. J. Gibson. Registrar: Fred. A. Heney.

Sir Patrick Dun's Hospital.—The certificates of this hospital are recognised by all universities and examining bodies in the United Kingdom. Fees for attendance of students—nine months, £12 12*s.*; winter session, £8 8*s.*; summer session, £5 5*s.* The hospital is open to extern students as well as to the students of Trinity College.

Staff.—Consulting Physicians: Sir John Banks and Dr. J M. Purser. Physicians: Dr. Walter George Smith, Dr. John Magee Finny, Dr. H. C. Drury, and Sir Arthur Vernon Macan. Assistant Physician: Dr. T. G. Moorhead. Surgeons: Dr. Edward H. Bennett, Sir Charles B. Ball, and Dr. Edward H. Taylor. Pathologist: Dr. Alexander C. O'Sullivan. Assistant Surgeon: Dr. C. A. K. Ball. House Surgeon: Dr. J S. Joly.

Clinical Instruction is given regularly every morning from 9 o'clock during the winter and summer months in Medicine, Surgery, Diseases of Women, Fevers, and Diseases of the Skin. Demonstrations are also given in Pathology and *Bacteriology. Special* classes for students commencing their hospital studies are held during the months of October, November, and December.

The X-Ray Department, which has recently been remodelled, possesses the latest and most convenient arrangements for the study and treatment of injury and disease. Clinical *medals* and *prizes* are awarded annually in *Medicine* and in Surgery. Full particulars can be had on application to the Secretary.

Mercer's Hospital.—This hospital, founded in 1707, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University *School of Medicine*, and within five minutes' walk of Trinity College It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. *There is a large* out patient department and a special department for diseases peculiar to women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

Fees.—Winter, six months, £8 8*s.*; Summer, three months, £5 5*s.*; nine months, £12 12*s.*

For further particulars apply to Dr. R. Charles B. Maunsell, 32, Lower Baggot-street, Dublin.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—Physicians: Sir John William Moore, Dr. James Craig, and Dr. Edward E. Lennon. Surgeons: Sir Philip Smyly (Surgeon to the King), Sir L. H. Ormsby (President of the Royal College of Surgeons in Ireland), Mr. W. J. Hepburn, Mr. William Taylor, and Mr. R. Lane Joynt. This hospital was founded in 1753 and now contains 145 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the Hospital. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Six Medical Clinical Clerks and Twelve Surgical Resident Pupils and Dressers are appointed every six months, and a House Surgeon is elected annually. The session will open on Oct 1st and the opening address will be delivered by Sir Philip C. Smyly on Monday, Oct. 12th. A prospectus giving the complete arrangements for the Medical and Surgical classes for the coming session may be obtained from the Secretary of the Medical Board, Mr. R. Lane Joynt, 84, Harcourt-street, Dublin.

MATER MISERICORDIÆ HOSPITAL, Dublin.—Consulting Physician: Sir Francis R. Cruise. Physicians: Sir Christopher Nixon, Dr. Joseph Redmond, Dr. John Murphy, and Dr. Martin Dempsey. Assistant Physician: Dr. John O'Donnell. Consulting Surgeon: Mr. Patrick Hayes. Surgeons: Mr. Charles Coppinger, Mr. Arthur Chance, Mr. John Lentaigne, and Mr. Alexander Blaney. Assistant Surgeon: vacant. Obstetric Physician: Dr. Robert Farnan. Ophthalmic Surgeon: Mr. Louis Werner. Dental Surgeon: vacant. Pathologist: Dr. Edmond McWeeney. Anæsthetist and Surgical Registrar: Dr. Michael O'Sullivan. This hospital, the largest in Dublin, at present containing 335 beds, is open at all hours for the reception of accidents and urgent cases. Fifty beds are specially reserved for the reception of patients suffering from fever and other contagious diseases. Clinical instruction will be given by the Physicians and Surgeons at 9 A.M. daily. A course of Clinical Instruction on Fever will be given during the winter and summer sessions. A certificate of attendance upon this course, to meet the requirements of the licensing bodies, may be obtained. Opportunities are afforded for the study of Diseases of Women in the ward under the care of the Obstetric Physician, and at the Dispensary held on Tuesdays and Saturdays. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary. Surgical Operations will be performed on Mondays, Tuesdays, Fridays, and Saturdays at 11 o'clock. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents. Instruction will be given on Pathology and Bacteriology. Three House Physicians and six House Surgeons will be appointed annually. Ten resident pupils will be elected from the most attentive of the class to hold office for six months. Dressers and Clinical Clerks will be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes: One Gold and one Silver Medal will be offered for competition annually in the subject of Medicine, and one Gold and one Silver Medal in the subject of Surgery. Junior Leonard Prizes: One prize value £3 and one prize value £2 will be awarded in Medicine, and one prize value £3 and one prize value £2 will be awarded in Surgery. They will be awarded on the aggregate of marks gained for Reports of Cases. For further particulars see prospectus. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. Private Wards have been opened for the reception of Medical and Surgical cases. A Training School and Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance.—Nine months, £12 12*s.*; six winter months, £8 8*s.*; three summer months, £5 5*s.* Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr. Martin Dempsey, 37, Westland-row. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes, &c., may be obtained from the Secretary, Mr. Arthur Chance, 90, Merrion-square, Dublin.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS, North Brunswick-street, Dublin.—These hospitals contain 312 beds—110 for Surgical cases, 82 for Medical cases, and 120 for Fever and other epidemic Diseases. A Resident Physician and a Resident Surgeon are appointed each year and are paid for their services. Six Resident Clinical Clerks are appointed each half-year and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students, but also to those who are qualified in Medicine and Surgery. The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. For prospectuses apply to Sir W. Thomson, Hon. Treasurer, 54, Stephen's-green East; or to Dr. J. O Carroll, Honorary Secretary, 43, Merrion-square, Dublin.

ROTUNDA HOSPITAL, Rutland-square, Dublin.—This institution consists of two distinct hospitals—namely, the Lying-in Hospital and the Auxiliary Hospital, the latter for the reception of patients suffering from Uterine and Ovarian Diseases. There is a large extern maternity and also a Dispensary for Diseases peculiar to Women, which is open daily. Clinical instruction is given daily (Saturdays excepted) in Midwifery and the Diseases peculiar to Women, special attention being directed to the application of antiseptics in Midwifery. Accommodation is provided for a limited number of intern pupils. Master: Dr. R. Dancer Purefoy. Assistant Physicians: Dr. Gordon W. FitzGerald and Dr. Gibbon FitzGibbon. Clinical Clerks: Dr. J. Lewis Stellauer and Dr. J. Dickson Gourlay.

Students have access to a well-equipped Pathological Laboratory under Dr. Neville's direction.

DR. STEEVENS'S HOSPITAL.†—This hospital, containing beds for 200 patients, is situated close to the Kingsbridge Terminus of the Great Southern and Western Railway, occupying a position in the centre of one of the busiest manufacturing districts of the city, otherwise unprovided with medical institutions, and affords exceptional advantages for clinical instruction. Immediately adjoining is St. Patrick's (Swift's) Asylum for the Insane. The hospital is easily accessible by two lines of tramways. There is a ward entirely devoted to Venereal Disease, a detached building for Fever Cases, and an extensive Out-patient Department, with separate Clinics for Diseases of the Skin, Throat, Eye, Ear, Teeth, and Women. The hospital is visited daily by the physicians and surgeons. The wards are also visited by the resident surgeon each evening. Clinical Lectures are given by the physicians and surgeons during the session. There is accommodation in the hospital for four medical, six surgical, and two special resident clinical assistants.

Fees.—Hospital Practice: Nine months, £12 12*s.*; six months, £8 8*s*; three months, £5 5*s.* Dressership: £10 10*s.* each three months.

APPENDICITIS AND FROZEN FOOD.—Dr. Kent Hughes, writing from Melbourne, says: "Mr. S. Kellett Smith's suggestion as to the possible connexion between appendicitis and frozen food may do a large amount of injury to Colonial traders without conferring any benefit upon English patients. Appendicitis is much more frequently discovered in Melbourne, Sydney, and Adelaide than formerly, a fact which may be due solely to more accurate methods of diagnosis. Frozen food is, of course, practically never eaten in Australia."

PROVINCIAL POST-GRADUATE STUDY.—The post-graduate movement is spreading. The Liverpool School of Tropical Medicine in connexion with University College, Liverpool, provides post-graduate classes. Clinical instruction is given at the Royal Southern Hospital, which has a special ward for the reception and treatment of tropical diseases. In the pathological department of University College (Thompson-Yates Laboratories) investigations of specimens may be made. Ample facilities are provided at Cambridge University for study and research in anatomy, physiology, pathology, pharmacology, and chemistry. Lectures in clinical medicine and surgery are given at Addenbrooke's Hospital. Various courses of lectures are from time to time available for graduates at the Royal Infirmary of Edinburgh, the City Hospital, and some other institutions. Instruction in bacteriology and pathology is available for medical men throughout the year also at Belfast. We hope that every medical centre will soon see the need for supplying post-graduate instruction.

---

† No returns.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY.

INSTITUTION	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON UNIVERSITY	No. 1.	£40 per annum.	1 year.	Awarded to the most meritorious of those candidates, whether internal or external, who, having passed the whole Intermediate Examination in Medicine at one time, have been awarded marks of distinction in (1) ANATOMY, or (2) PHYSIOLOGY, or (3) PHARMACOLOGY.	No candidate will be allowed to receive the income of more than one scholarship at the same time.
	No. 2.	£40 per annum.	1 year.		
	No. 3.	£30 per annum.	1 year.		
OCIETY OF APOTHECARIES OF LONDON.	Gillson.	£90 per annum	1 year.	Open to Licentiates of the Society, or to candidates for the Society's Diploma who obtain such Diploma within six months of their election to the scholarship.	Candidates must be under 35 years of age [illegible]
T. BARTHOLOMEW'S MEDICAL SCHOOL	Entrance Scholarships. No. 1.	£75.	——	Open Competitive Examination in not more than three nor fewer than two of CHEMISTRY, PHYSICS, ZOOLOGY, [illegible]	Full Course at St. Bartholomew's Hospital.
	" No. 2.	£75.	——		Ditto.
	" No. 3	£150.	——	[illegible]	Ditto.
	Preliminary Scientific Exhibition.	£50.	——	[illegible]	Ditto.
	Jeaffreson Exhibition.	£20.	——	Open Competitive Examination in LATIN, MATHEMATICS, and GREEK, FRENCH, or GERMAN.	Ditto.
	Shuter Scholarship.	£50.	——	Competitive Examination among Cambridge Graduates in ANATOMY, PHYSIOLOGY, and MATERIA MEDICA.	Ditto.
	Junior Scholarships.				
	" No. 1.	£30.	——	Competitive Examination among Students in ANATOMY and BIOLOGY.	Study at St. Bartholomew's Hospital.
	" No. 2.	£20.	——	Ditto.	Ditto.
	" No. 3.	£25	——	Competitive Examination in CHEMISTRY, PHYSICS, and HISTOLOGY.	Ditto.
	" No. 4.	£15.	——	Ditto.	Ditto.
	Senior Scholarship.	£50.	——	Competitive Examination among Students in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	Ditto.
	Kirkes Scholarship	£30 and Medal.	——	Competitive Examination among Students in CLINICAL MEDICINE.	
	Brackenbury Scholarships. " No. 1.	£30.	——	[illegible]	Ditto.
	" No. 2.	£30.	——	[illegible]	Ditto.
	Lawrence Scholarship.	£42 and Medal.	——	[illegible]	Ditto.
	Sir Geo. Burrows Prize.	£10 10s.	——	[illegible]	
	Skynner Prize.	£15.	——	[illegible]	Ditto.
	Matthews Duncan Medal and Prize.	£20.	——	[illegible] COLOGY.	Ditto.
HARING - CROSS HOSPITAL AND COLLEGE	Entrance Scholarships, open to students at the commencement of curriculum. Livingstone.	100 guineas.	——	[illegible] olar- at nter exa- ups of subjects: — (1) ENGLISH, including LANGUAGE, HISTORY, and GEOGRAPHY; (2) Any two of the following four languages —LATIN, GREEK, FRENCH, and GERMAN; (3) MATHEMATICS, including ARITHMETIC, ALGEBRA, and GEOMETRY; and MECHANICS, [illegible] ANIMAL and VEGETABLE BIOLOGY. [illegible] entirely to the Candidate.	Open to all general students.
	...	60 "	——		Open to all general students.
	Huxley.	55 "	——		For sons of medical men.
	...	40 "	——		Open to all general students.
	...	30 "	——		For dental students.
	Epsom Scholarship.	Free education.	——		Epsom Foundation Scholars who have passed Preliminary Scientific M.B. Lond. Univ.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
CHARING-CROSS HOSPITAL AND COLLEGE—*continued.*					
	Universities Scholarship (1) Universities Scholarship (2)	72 guineas. 72 „	... ...	Examination in Anatomy and Physiology, including Histology.	Oxford Students who have passed first M.B. Exam. Cambridge students who have passed second M.B. Exam. London students who have passed Intermediate Exam. in Med. who have not entered at any London Medical School.
	Llewellyn Scholarship.	£25.	... ...	Awarded annually to the Student of not more than five years' standing, who, in the opinion of the School Committee, shall have distinguished himself the most at the Prize Examinations in the following subjects, viz.:—Medicine, Surgery, Midwifery, Pathology, Therapeutics, Forensic Medicine, Public Health, Psychological Medicine, Ophthalmology, Practical Medicine, Practical Midwifery.	None.
	Huxley Medal with Prize.	£10.	... ...	Competitive Examination in Anatomy and Physiology at end of Second year.	...
	Golding Prize.	£10.	... ...	Competitive Examination among First-year Students in Anatomy and Physiology.	Students must have attended the Classes in each subject at this School.
ST. GEORGE'S HOSPITAL.	Entrance Scholarships. No. 1.	£100.	... ...	Competitive Examination among First-year Students, in Latin, Greek, French, German, Mathematics, Physics, Chemistry, and Biology; three at option.	To enter St. George's School.
	„ No. 2.	£100.	... ...	Competitive Examination in Organic Chemistry, Anatomy, Physiology, Zoology, and Botany; two at option.	Ditto.
	„ No. 3.	£50.	... ...	Competitive Examination in Anatomy and Physiology.	Candidates must have passed an examination in Anatomy and Physiology for a Degree or Diploma in the United Kingdom or the colonies.
	Wm. Brown Exhibition.	£100 per annum.	2 years.	Competitive Examination among Perpetual Pupils having registrable qualification in the Practice of Medicine, Midwifery, and Surgery.	Study at St. George's School.
	„	£40 „ „	3 years.	Competitive Essay and Submission of Original Work by Perpetual Pupils qualified not more than three years previously.	Ditto.
	Brackenbury Prize in Medicine.	Interest on £1103.	... ...	Competitive Examination among Students of not more than five years' standing.	None.
	Brackenbury Prize in Surgery.	Interest on £1103.	... ...	Competitive Examination among Students of not more than five years' standing.	None
	Treasurer's Prize.	£10 10s.	... ...	Proficiency in Clinical Examination of three Medical and three Surgical Cases, together with a written Examination in Medicine, Surgery, and Midwifery.	None.
	H. C. Johnson Memorial Prize.	£10 10s.	... ...	Competitive Examination in Practical Anatomy.	None.
	Pollock Prize.	Interest on £372.	... ...	Competitive Examination in Physiology, Physiological Chemistry, and Histology.	None.
	Clarke Prize. Thompson Medal. Brodie Prize.	Interest on £209. Interest on £185. Interest on £220.	... ...	Awarded for Clinical Reports and Commentaries.	None.
	Webb Prize.	Interest on £1000.	... ...	Competitive Examination among Perpetual Pupils in Bacteriology.	None.
	General Proficiency Prizes. No. 1.	£10 10s.	... ...	Competitive Examination in Elementary Anatomy, Biology, Chemistry, and Physics.	None.
	„ No. 2.	£10 10s.	... ...	Competitive Examination in Anatomy, Physiology (including Histology), and Physiological Chemistry.	None.
	„ No. 3.	£10 10s.	... ...	Competitive Examination in Organic Chemistry, Anatomy, and Physiology, including Histology and Physiological Chemistry.	None.
	„ No. 4.	£10 10s.	... ...	Competitive Examination in Medicine, Surgery, Obstetric Medicine, and Pathology.	None.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
GUY'S HOSPITAL	Entrance Scholarships. No. 1.	£100.	—	Open Competitive Examination among Candidates under twenty years of [illegible]	Course at Guy's Hospital.
	" No. 2.	£50.	—	[illegible]	Ditto.
	" No. 3.	£150.	—		Perpetual Course at Guy's Hospital.
	" No. 4.	£60.	......	Ditto.	Ditto.
	" No. 5.	£50.	—	[illegible]	Ditto.
	Arthur Durham Prizes.	£15.	—	[illegible]	
	"	£5.	—	[illegible]	Ditto.
	Hilton Prize.	£5.	—		Ditto.
	Junior General Proficiency.	£20.	—	[illegible]	
	"	£15.	—	Ditto.	Ditto.
	"	£10.	—	Ditto.	Ditto.
	Michael Harris Prize.	£10.	—	Competitive Examination among Second-year Students in HUMAN ANATOMY.	Ditto.
	Sands Cox Scholarship.	£15 per annum.	3 years.	Competitive Examination among Second-year Students in PHYSIOLOGY, HISTOLOGY, and PHYSIOLOGICAL CHEMISTRY.	
	Wooldridge Memorial Prize.	£10.	......	Ditto.	
	Treasurer's Gold Medals (1) for Clinical Medicine, (2) for Clinical Surgery.	......	......	Competitive Examination among Senior Students in MEDICINE and SURGERY respectively.	
	Golding Bird Prize.	£20 and Medal.	—	Competitive Examination among [illegible]	Ditto.
	Beaney Prize.	£31 10s.	—	[illegible]	Ditto.
	Gull Studentship, Pathology.	£150 per annum.	3 years.	[illegible]	
	Beaney Scholarship, Therapeutics	£31 10s.	3 years.	Ditto	
KING'S COLLEGE	Warneford Scholarships. No. 1.	£25 per annum.	4 years.	[illegible]	Perpetual Course at King's College.
	" No. 2.	£25 per annum.	4 years.	Ditto.	Ditto.
	Sambrooke Exhibition.	£150.	—	Open Competitive Examination in MATHEMATICS, ELEMENTARY PHYSICS, INORGANIC CHEMISTRY, [illegible]	Course as Medical Student at King's College.
	Rabbeth Scholarship.	£20.	—	[illegible]	None.
	Science Exhibitions. No. 1.	£30 per annum.	2 years.	[illegible]	None.
	Science Exhibitions. No. 2.	£20 per annum.	2 years.	[illegible] jects.	None.
	Medical Entrance Scholarship.	£50.	—	Open Competitive Examination in ANATOMY AND PHYSIOLOGY for Students who propose to take degree at any British University and have passed the Examination at that University in BIOLOGY, CHEMISTRY, and PHYSICS.	
	Medical Scholarships. No. 1.	£40 per annum.	1 year.	Competitive Examination among [illegible]	
	" No. 2.	£30.	1 year.	[illegible] ng	
	" No. 3.	£20.	1 year.	[illegible] ng	
	" No. 4.	£20.	1 year.	[illegible]	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
KING'S COLLEGE—*continued.*	Sambrooke Registrarship. No. 1.	£50.	....	Competitive Examination among Matriculated Medical Students who have filled certain appointments at hospitals.	
	,, No. 2.	£50.	— —	Ditto.	
	Daniel Scholarship.	£20 per annum.	2 years.	Open Competitive Examination among six months' Laboratory Students in CHEMISTRY.	
	Carter Prize.	£15.	— —	Open Competitive Examination in Botany.	
	Tanner Prize.	£10.	— —	Competitive Examination in OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.	None.
	Todd Prize.	£4 4s. and medal.	— —	Competitive Examination in Clinical Medicine.	
LONDON HOSPITAL	1. Price Scholarship	£120.	— —	Competitive Examination among Students in subjects of Preliminary Scientific M.B. Examination at University of London.	Successful Candidates must enter as Full Students.
	2. Entrance Scholarships.				
	,, No. 1.	£60.	— —	Ditto.	
	,, No. 2.	£35.	— ..	Ditto.	
	3. Epsom College Scholarship.	Free Education	— —	....	
	4. Price Scholarship.	£60.	— —	HUMAN ANATOMY AND PHYSIOLOGY.	Study at Oxford or Cambridge.
	Buxton Scholarships. No. 1.	£30.	— —	Competitive Examination among Students in subjects of Preliminary Examination.	
	,, No. 2.	£20.	— —	Ditto.	
	Scholarship	£20.	— ..	Competitive Examination in CLINICAL MEDICINE.	
	,,	£20.	— —	Competitive Examination in CLINICAL SURGERY.	
	,,	£20.	— —	Competitive Examination in CLINICAL OBSTETRICS.	
	Sutton Prize in Pathology.	£20.	— —	Competitive Examination in PATHOLOGY.	
	Duckworth Nelson Prize.	£10.	. —	Competitive Examination in PATHOLOGY, PRACTICAL MEDICINE and SURGERY.	
	Biennially: Letheby Prizes	£20 and £10.	— —	Competitive Examination in CHEMISTRY.	
	Scholarship.	£25.	— —	Competitive Examination in ANATOMY AND PHYSIOLOGY.	
	,,	£20.	— —	Competitive Examination in ANATOMY and BIOLOGY.	
	Dressers' Prize.				
	,, No. 1.	£10.	— —	ZEAL, EFFICIENCY, and KNOWLEDGE OF MINOR SURGERY.	
	,, No. 2.	£10.	— —	Ditto.	
	,, No. 3.	£10.	— —	Ditto.	
	,, No. 4.	£10.	— —	Ditto.	
	,, No. 5.	£10.	— —	Ditto.	
	,, No. 6.	£10.	— —	Ditto.	
	Triennially: Hutchinson Prize.	£40.	— —	For the best essay upon a subject in CLINICAL SURGERY.	
	Practical Anatomy Prizes.	£6.	— —	....	
		£4.	— ..	....	
	Biennially: Andrew Clark Prize.	£26.	— ..	CLINICAL MEDICINE and PATHOLOGY.	
	James Anderson Prizes.	£9.	— —	CLINICAL MEDICINE.	
ST. MARY'S HOSPITAL ..	Natural Science Scholarship	£145.	— —	Competitive Examination.	Course at St. Mary's Hospital
	,,	£78 15s.	— —	Ditto.	
	,,	£78 15s.	— —	Ditto.	
	,,	£52 10s.	.. ..	Ditto.	
	University Scholarship.	£63.	— —	Open to Students from any British University by Competitive Examination in NATURAL SCIENCE.	
	,,	£63.	— —		
	Epsom College Scholarship.	£145.	— —	By nomination.	
	Kerslake Scholarship in Pathology and Bacteriology.	£25.	1 year.	Given for the best Essay on a Set Subject in PATHOLOGY and BACTERIOLOGY.	
	Gold Medal in Clinical Medicine.	£30.	— —	Given for an ESSAY ON SOME SPECIAL POINT IN CLINICAL MEDICINE.	
	General Proficiency Scholarship. No. 1.	£20	1 year.	ADVANCED ANATOMY, PHYSIOLOGY, and HISTOLOGY.	
	,, No. 2.	£20.	1 year.	MIDWIFERY, MATERIA MEDICA, PATHOLOGY, and FORENSIC MEDICINE.	
	,, No. 3.	£20.	1 year.	MEDICINE, SURGERY, HYGIENE, and MENTAL DISEASES.	
	Ophthalmology Prize.	£10 10s.	— —	Awarded twice in each year by Competitive Examination.	
	Dermatology Prize.	£5 5s.	— —	Ditto.	
	Meadows Prize in Obstetrics.	£8.	— —	Awarded in alternate years for Proficiency in OBSTETRICS.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. MARY'S HOSPITAL—*continued.*	Clinical Medicine Prize.	£5 5s.	....	Awarded annually for Reports of Clinical Cases by Students of Third and Fourth Years.	
	Clinical Surgery Prize.	£5 5s.	— —		
	Winter Session Prizes (10 in number).	£3 3s. and £2 2s. each.	— —	Competitive Examination at the end of the Course of Lectures in each of the Subjects of the Medical Curriculum.	
	Summer Session Prizes (7 in number).	£3 3s. and £2 2s. each.	— —	Ditto.	
MIDDLESEX HOSPITAL ...	Entrance Scholarship No. 1.	£100.	— —	Open Competitive Examination.	Course at Middlesex Hospital.
	„ No. 2.	£60.	— —	Ditto.	Ditto.
	„ No. 3.	£60.	— —	Competitive Examination among Students from Oxford or Cambridge. (Subjects: ANATOMY and PHYSIOLOGY, including HISTOLOGY.)	
		£126.	— —	To Students of Epsom College, on Nomination of Head Master.	
	Broderip Scholarship. No. 1.	£60.	— —	Competitive Examination among Senior Students in CLINICAL SUBJECTS.	
	„ No. 2.	£40.	— —	Ditto.	
	Freeman Scholarship.	£30.	....	Examination in OBSTETRICS and [illegible]	
	Governor's Prize.	£21.	— —	[illegible]	
	Hetley Clinical Prize.	£25.	— —	[illegible]	
	John Murray Gold Medal and Scholarship.	£20.	Every third year.	Examination in MEDICINE, SURGERY, and OBSTETRICS.	
	Lyell Medal.	£5 5s.	— —	Examination in SURGICAL ANATOMY and PRACTICAL SURGERY.	
	Leopold Hudson Prize.	£11 11s.	....	Examination in SURGICAL PATHOLOGY and BACTERIOLOGY.	
ST. THOMAS'S HOSPITAL SUMMER	College Prizes.				
	„ No. 1.	£15.	— —	Competitive Examination among First-year Students.	
	„ No. 2.	£10.	— —	Ditto.	
WINTER	Entrance Science Scholarship. No. 1.	£150.	— —	[illegible]	Perpetual Course.
	„ No. 2.	£60.	— —	Ditto.	Ditto.
	„ No. 3.	£50.	— —	Competitive Examination in ANATOMY, PHYSIOLOGY, CHEMISTRY (any two).	Perpetual Course from third year.
	Wm. Tite Scholarship.	£25.	— —	Competitive Examination among First-year Students.	
	College Prizes.				
	„ No. 5.	£20.	— —	Ditto.	
	„ No. 6.	£10.	— —	Ditto.	
	Musgrove Scholarship, or	£35.	2 years.	Competitive Examination among Second-year Students.	
	Peacock Scholarship.	£35.	2 years.	Ditto.	
	College Prizes.				
	„ No. 7.	£20.	— —	Competitive Examination among Second year Students.	
	„ No. 8.	£10.	— —	Ditto.	
	„ No. 9.	£10.	— —	Competitive Examination among Fifth-year Students.	
	„ No. 10.	£10.	— —	Ditto.	
	„ No. 11.	£10.	— —	Ditto.	
	„ No. 12.	£10.	— —	Ditto.	
	„ No. 13.	£10.	— —	Ditto.	
	„ No. 14.	£10.	— —	Ditto.	
	„ No. 15.	£10.	— —	Ditto.	
	Cheselden Medal.	— —	— —	Competitive Examination in SURGERY and ANATOMY	
	Mead Medal.	— —	— —	Competitive Examination in MEDICINE and PATHOLOGY.	
	Seymour Graves Toller Prize.	— —	— —	Ditto.	Ditto.
	Bristowe Medal.	— —	— —	Competitive Examination in PATHOLOGY and MORBID ANATOMY.	
	Solly Medal and Prize.	— —	— —	SURGICAL REPORTS.	
	Treasurer's Gold Medal.	— —	— —	General Proficiency.	
	Wainwright Prize.	— —	— —	Medicine and Pathology.	
	Hadden Prize.	— —	— —	Pathology.	
	Beaney Scholarship.	£50 biennially.	— —	For SURGERY and SURGICAL PATHOLOGY.	
	Sutton Sams Memorial Prize.	£5 biennially.	— —	Reports of Cases in OBSTETRIC MEDICINE.	
	Grainger Testimonial Prize.	£15 annually.	— —	For work in ANATOMY and PHYSIOLOGY.	
	The Salters' Company Research Fellowship.	£100 annually.	3 years.	Promotion of Research — PHARMACOLOGY.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
UNIVERSITY COLLEGE, LONDON	Entrance Scholarships No. 1. (Bucknill Scholarship.)	£120.	— —	Open Competitive Examination in CHEMISTRY, PHYSICS, BOTANY, and ZOOLOGY.	Perpetual Course at University College.
	" No. 2.	60 gs.	— —	Ditto.	Ditto.
	" No. 3.	60 gs.	— —	Ditto.	Ditto.
	" No. 4.	80 gs.	— —	ANATOMY and PHYSIOLOGY.	Ditto.
	" No. 5.	80 gs.	— —	Ditto.	Ditto.
	Atkinson Morley Scholarship.	£45 per annum.	3 years.	Theory and Practice of Surgery.	
	Atchison Scholarship.	£55 per annum.	2 years.	Competitive Examination among Medical Students.	
	Sharpey Physiological Scholarship.	About £110.	— —	Proficiency in Biological Science.	
	Filliter Exhibit'n.	£20.	1 year.	Competitiv [illegible] dents in [illegible]	
	Cluff Mem. Prize.	£15.	— —	Competitiv [illegible] dents in [illegible] and CHEMISTRY.	
	Erichsen Prize.	£10 10s.	— —	Practical Surgery.	
	Morris Bursary.	£15.	2 years.	....	
WESTMINSTER HOSPITAL	Guthrie Entrance Scholarship.	£60 (total).	— —	Open Competitive Examination among Candidates under twenty-five years of age in LATIN,* MATHEMATICS, EXPERIMENTAL PHYSICS, CHEMISTRY, and GREEK, FRENCH, or GERMAN.	For Students entering in the Winter Session.
	Entrance Scholarship.	£40 (total).	— —	Ditto.	Ditto.
	Ditto.	£30.	— —	Ditto.	Ditto.
	Dental Scholarship.	£20 (total).	— —	Ditto, as above, save that Dental Students only can compete.	For Students entering in the Winter Session.
	Free Presentation.	— —	— —	Open to Pupils of the Epsom Medical College, obtained by recommendation.	
	Entrance Scholarship (Governors).	£40 (total).	— —	Open Competition in CHEMISTRY and EXPERIMENTAL PHYSICS according to the Synopsis of the Conjoint Board	For Students entering in the Summer Session.
	Natural Science.	£60.	— —	Competitive Examination in subjects of Preliminary Scientific of University of London.	For Students entering in the Winter Session.
	University Scholarship.	£40 (total).	— —	Competitive Examination among University Students in ANATOMY and PHYSIOLOGY.	In April and in September.
	Ditto.	£30.	— —	Ditto.	Ditto.
	Natural Science	£60.	— —	Competitive Examination in subjects of Preliminary Scientific of London University.	Ditto.
	Arts Scholarship (Entrance).	£60.	— —	Competitive Examination as for the Guthrie Scholarship, except that the Latin Book is that of the London Matriculation of the preceding January.	For Students entering in the Summer Session.
	Ditto.	£40.	— —	Ditto.	Ditto.
	Treasurers' Prize.	£10 10s.	— —	Competitive Examination among First-year Students in ANATOMY, BIOLOGY, and CHEMISTRY.	
	Sturges Prize in Clinical Medicine.	£10.	— —	Notes and commentaries on 6 cases.	
	Clinical Surgery.	£5.	— —	Ditto on 12 cases.	
	Chadwick Prize.	£21 in books or instruments.	— —	Competitive Examination among Medical Students in MEDICINE and SURGERY, including PATHOLOGY and APPLIED ANATOMY and PHYSIOLOGY.	
	Bird Medal and Prize.	£14 in medal, books, or instruments.	— —	Competitive Examination in MIDWIFERY and DISEASES of WOMEN, MEDICINE, and PATHOLOGY among Students who have completed their Fourth Winter Session at the Westminster Hospital School of Medicine.	
LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN	Entrance Scholarship.	£30.	— —	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	
	St. Dunstan's Medical Exhibition.	£60.	3 years, extendible to 5 years.	Ditto.	Candidates must be (1) not more than 20 years of age on June 1st preceding the examination; (2) resident in the Metropolitan Police District area; (3) Matriculated Students of the University of London; (4) in the opinion of the Governors in need of such an exhibition for the prosecution of their medical studies.

---

* The Latin Book is that of the Matriculation, University of London, in the preceding June.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN —*continued.*	Stuart Mill Scholarship.	£30.	4 years.	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	Candidates must be willing to enter into a legal arrangement to practise in India under the Countess of Dufferin's Fund.
	Bostock Scholarship.	£60.	2 or 4 years	Given to a Student who has passed the Preliminary Scientific Examination or Intermediate Science Examination of the University of London on the result of an Examination held by the University of London in September.	Candidates are expected to read for the M.B. degree of the University of London.
	Mabel Webb Research Scholarship	£30.	2 years.	For Research Work in PHYSIOLOGY, CHEMISTRY, or PATHOLOGY.	—
	Fanny Butler Scholarship.	£14 10s.	4 years.	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	Candidates must be willing to work in connexion with the Church of England Zenana Missionary Society.
	John Byron Bursary.	£20.	2 to 4 years	—	Offered to students already in the school requiring assistance for the prosecution of their medical studies.
	Two Mackay Prizes.	£20 each.	—	Given to the two Students gaining the highest number of marks in the School Examinations during the first two years of Medical Study.	
	Helen Prideaux Scholarship.	£50.	—	......	Awarded every second year to a Student who has qualified during the two years immediately preceding the date of the award, and who, in the opinion of the Trustees, has done the best work during her final years in MEDICINE, SURGERY, OBSTETRIC MEDICINE, and PATHOLOGY. The holder of the Prize shall submit to the Trustees for their approval a statement as to how she proposes to spend the money, so as to fulfil the condition that it is for the purpose of assisting her to further study. The next award will be in December, 1904.
OXFORD UNIVERSITY —	Burdett-Coutts Scholarships.	£115 per annum.	2 years.	Competitive Examination.	For the promotion of the Study of Geology and of Natural Science as bearing on Geology.
	Radcliffe Trav. Fellowship	£200 „ „	3 years.	Ditto.	Foreign Travel for purpose of Medical Study.
	Rolleston Prize.	—	—	Original Research	This prize is given once in two years and is of the value of about £80.
	Scholarships in various branches of Natural Science at many of the Colleges.	£50 to £80 a year.	4 years.	Competitive Examination.	Satisfactory industry.
	Welsh Memorial Prize.	—	—	Best set of drawings illustrative of HUMAN ANATOMY.	Competitors must be members of the University who have studied in the Anatomical laboratory. No one is eligible who has passed the first examination for the degree

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
OXFORD UNIVERSITY—*continued.*					of B.M., or an examination in Anatomy necessary for registration as a qualified medical practitioner.
UNIVERSITY OF DURHAM	Four Scholarships.	£25 a year each.	4 years.	The Examination will be the *September* Examination for the Certificate in General Education. Candidates must take ENGLISH, LATIN, ARITHMETIC, EUCLID, ALGEBRA, with GREEK, FRENCH, or GERMAN. (See College Calendar for special books.)	Candidates desirous of being admitted as Medical Students. The successful Candidates must take out their entire curriculum at the University of Durham College of Medicine, Newcastle-upon Tyne.
College of Medicine	Dickinson Scholarship.	Interest on £400 and Gold Medal.	—	Examination in MEDICINE, SURGERY, MIDWIFERY, and PATHOLOGY.	Full Students of the College of Medicine who have passed the intermediate examination of any of the Licensing Bodies named in Schedule A of the Medical Act, 1858.
	Tulloch Scholarship.	Interest on £400.	—	Examination in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	No Student is eligible who commenced his medical curriculum more than two academical years before the date of examination.
	Charlton Memorial Scholarship.	Interest on £700	—	—	Open to full Students of the College entered for the class on the Principles and Practice of Medicine.
	Gibb Scholarship.	Interest on £500.	—	Awarded annually as a Scholarship in PATHOLOGY to full Student who passes the best examination in that subject.	No Student eligible after completion of his curriculum.
	Luke Armstrong Memorial Scholarship.	Interest on £680.	—	Original Essay on some subject in COMPARATIVE PATHOLOGY. (If no Essay of sufficient merit be presented the Scholarship may be awarded to the Candidate who, in passing the first part of the Examination for the B.Hy. Degree, obtains the highest number of marks in COMPARATIVE PATHOLOGY during the year.)	Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University, and whose age does not exceed thirty years
	Stephen Scott Scholarship.	Interest on £1000.	—	Original essay on any Surgical subject.	Any Graduate in Medicine or Surgery of the University or any Student of the College of Medicine. Student's age must not exceed 30 years.
	Heath Scholarship.	Interest on £4000.	—	Original essay on THE DEVELOPMENT AND ANATOMY OF THE PROSTATE GLAND, TOGETHER WITH AN ACCOUNT OF ITS INJURIES AND DISEASES AND THEIR SURGICAL TREATMENT.	All Graduates in Medicine or Surgery of the University are eligible.
	Gibson Prize.	Interest on £225.	—	Examination in subject of MIDWIFERY and DISEASES OF WOMEN AND CHILDREN.	Open to Students who have attended one course of lectures on Midwifery and Diseases of Women and Children.
Royal Infirmary	Goyder Memorial Scholarship.	Interest on £325.	Annually.	Student who most distinguishes himself in CLINICAL MEDICINE AND CLINICAL SURGERY at the Royal Infirmary.	
UNIVERSITY OF BIRMINGHAM	Myers Travelling Studentship.	£150.	1 year.	Awarded by vote of committee to M.B., Ch.B.Birm., B.Sc. candidates.	Tenable at one of certain German universities.
	Ingleby Scholarship.	£10.	1 year.	Awarded to the candidate at Final Examination obtaining highest marks in the subjects of MIDWIFERY and GYNÆCOLOGY.	
	Sydenham Scholarship.	£42.	3 years.	Award of Council to orphan sons of Medical Practitioners.	
	Sands Cox Scholarship	£42.	3 years.	Awarded to the candidate, not being more than 19 years of age, taking the highest marks at the June Matriculation	
	Dental Scholarship.	£37 10s.	3 years.	Open Competitive Examination in subjects learned during apprenticeship.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
VICTORIA UNIVERSITY OF MANCHESTER	Gilchrist Scholarship.	£50.	3 years	Awarded annually to the candidate who shall stand highest at the June prelimi [illegible]	Candidates must be over 18 years of age on July 1st in the year of competition.
	University Scholarship in Medicine.	£25	1 year.		
	University Fellowship in Medicine.	£100.	1 year.	promise in one or more of the subjects of the Second or Final M.B Examinations	For the encouragement of Study and Research.
OWENS COLLEGE, MANCHESTER	General Entrance Scholarships.	...	...	...	Open to candidates above 16 and under 20 years of age.
	Rogers	£40	2 years.	Subjects· GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION	
	Seaton	£40	2 years.	Subjects GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION	
	Dalton.	£40.	2 years.	Subjects EUCLID, ALGEBRA, TRIGONOMETRY, GEOMETRY, and CONIC SECTIONS	
	Cartwright.*	£35	3 years	Ditto	
	Hulme	£35.	3 years.	Subjects ENGLISH LANGUAGE and LITERATURE, HISTORY, GEOGRAPHY, and LATIN, GREEK, FRENCH, or GERMAN (any two subjects)	
	James Gaskill.	£35.	2 years.	MATHEMATICS, MECHANICS, and CHEMISTRY.	
	Dora Muir.†	£25	3 years.	Ditto.	
	Manchester Grammar School.*	£18	3 years.	MATHEMATICS, ENGLISH ESSAY with CLASSICS and PHYSICAL SCIENCE in alternate years	
	Kay Shuttleworth *	£30	3 years.	Subjects as in James Gaskill Scholarships	Pupils of Sedbergh, Giggleswick, or Burnley Grammar School.
	Theodores Exhibition	£15	1 year.	Subjects FRENCH and GERMAN.	Successful candidates are required to enter for a regular University course
	Entrance Scholarships in Medicine	£100.	..	One for proficiency in Arts One for proficiency in Science.	No limit as to age £60 set off against College fees and £40 against Infirmary fees
	Platt Biological Scholarship.	£50	1 year	Awarded to candidate who shows the most promise of ability for prosecuting original research in Zoology and Botany	To devote his time to research in Zoology or Botany.
	Robert Platt Physiological Scholarship.	£50	2 years.	Subjects PHYSIOLOGY and COMPARATIVE ANATOMY.	Open to Candidates whether or not previously students of the College.
	Dauntesey Medical Scholarships (two)	£35 each.	1 year.	Subjects: ZOOLOGY, BOTANY, and CHEMISTRY.	These Scholarships are open to all students preparing for a Medical Course who shall not have attended Lectures or Laboratory Courses on Human Anatomy or Physiology, or a purely Medical or Surgical Course in the Owens College or any other Medical School in the United Kingdom Candidates must not be more than 25 years of age on October 1st of the year of competition Scholars must immediately on election enter for a full course of medical studies
	Robert Platt Exhibitions (two).	£15 each.	...	...	First and second year students in Physiology
	Sidney Renshaw Exhibition.	£15	...	...	Second year students in Physiology.
	Professor Tom Jones Exhibition in Anatomy.	£25.	..	...	First year students in Anatomy.

* Open to men candidates only.

† Open to women candidates only.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

Institution.	Title of Scholarship, &c.	Annual or total value.	How long tenable.	How obtainable.	Conditions attached to tenure.
OWENS COLLEGE, MANCHESTER—*continued.*	Turner Scholarship.	£20.	— —	Subjects: Medicine, Pathology (written and practical), Obstetrics, Practical Surgery, Ophthalmology, Forensic Medicine, and Public Health.	Students who have completed a full course of medical study in the College are eligible only.
	John Henry Agnew Scholarship.	£80.	— —	The Scholarship is awarded on the results of an Examination, partly written and partly clinical, on Diseases of Children, Medical and Surgical.	Open for competition annually to all students in the Medical Department who have pursued a regular course of medical study in the College extending over a period of not less than 4 years or more than 6, and who have attended the course of lectures on Diseases of Children.
	Professor Tom Jones Memorial Surgical Scholarship.	£100.	1 year.	The scholar will be elected on the result of evidence submitted by him.	Candidates must have either graduated in the Victoria University or have obtained the Diploma of the Conjoint Colleges.
	Dumville Surgical Prize.	£15.	— —	Subjects: Systematic, Practical, and Operative Surgery, Surgical Anatomy, and Surgical Pathology.	
	Honorary Research Fellowships.	....	2 years.	Conferring the right of free use of the College Laboratories. Awarded generally in October on application, with evidence of capacity for independent investigation.	
BRISTOL ROYAL INFIRMARY AND BRISTOL GENERAL HOSPITAL.	University College Bristol Entrance Scholarship.	£50.	— —	Competitive Examination in Subjects of General Education.	Open to Perpetual Students of Faculty of Medicine, University College, Bristol.
	Lady Haberfield Entrance Scholarship.	Interest of £1000.	— —	Ditto.	
	Tibbits Surgical Prize.	£9 9s.	— —	Proficiency in Practical Surgery.	
	Martyn Memorial Pathological Prizes.	Two annually, of £10 each.	— —	Competitive Examination in Pathology and Morbid Anatomy.	
	A Gold and a Silver Medal.	— —	— —	Given by the Committees of the two Institutions to most distinguished Students of Fifth Year.	
Bristol Royal Infirmary ..	Suple Medical Prize.	Gold Medal value £5 5s. and £7 7s. in money.	— —	Competitive Examination in Medicine to Students of Fourth and Fifth Years.	Restricted to Perpetual Students who have done the necessary qualifying work at the Bristol Royal Infirmary.
	Suple Surgical Prize.	Gold Medal value £5 5s. and £7 7s. in money.	— —	Competitive Examination in Surgery of Students of Third and Fourth Years.	
	Henry Clark Prize.	£11 11s.	— —	Class Work of Third-year Students.	
	Crosby Leonard Prize.	£7 7s.	— —	Examination in Clinical Surgery.	
	Augustin Prichard Prize.	£6 6s.	— —	Examination in Surgical Anatomy.	
Bristol General Hospital ...	Sanders Scholarship.	£22 10s.	— —	Competitive Examination in Medicine, Surgery, and Midwifery of Fourth-year Students.	Restricted to Perpetual Students who have done the necessary qualifying work at the Bristol General Hospital.
	Clarke Scholarship.	£15.	— —	Competitive Examination in Surgery among Students of Fourth Year.	
	Marshall Prize.	£12.	— —	To the best Surgical Dresser of the fourth year.	
LEEDS SCHOOL OF MEDICINE (YORKSHIRE COLLEGE).	Entrance Scholarship.	£67 4s.	— —	Competitive Examination among Medical Students who have passed Preliminary Scientific Examination at London or Victoria University.	Complete Course of Lectures and Practical Classes at Leeds School.
	Infirmary Scholarship.	£42.	— —	Competitive Examination in Arts among Students who have passed one of the Preliminary Examinations.	Complete Course of Hospital Practice and Clinical Lectures at Leeds Infirmary.
	Hardwick Prize.	£10.	— —	Competitive Examination among Clinical Clerk Students of two years' standing in Clinical Medicine.	
	McGill Prize.	£10.	— —	Competitive Examination among advanced Surgical Students in Clinical Surgery.	
	Thorp Prizes.	£10 and £5.	— —	Examinations in Forensic Medicine and Hygiene.	
	Thorp Prize Essay.	£15.	— —	Essay or research on some subject connected with Forensic Medicine, Toxicology, or Public Health.	Every three years to former students of the Leeds School.
	Scattergood Prize.	£5.	....	Examination in Midwifery.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
UNIVERSITY OF LIVERPOOL	Robert Gee Entrance Scholarships (four annually).	£25 each.	1 year.	Special College Scholarship Examination held in May.	First M.B. Course.
	Holt Fellowships (Physiology and Pathology).	£100 each.	1 year.	Vote of Faculty to Student after graduation.	Teaching and Original Research.
	Gee Fellowship (Anatomy).	£100.	1 year.	Ditto.	Teaching and Research.
	Alexander Fellowship (Pathology).	£100.	1 year.	Ditto.	Research in Pathology.
	Johnston Colonial Fellowship (Pathology and Bacteriology).	£100.	1 year.	Ditto.	Ditto.
	John W. Garrett International Fellowship (Physiology and Pathology)	£100.	1 year.	Ditto.	Ditto.
	Lyon Jones Scholarship. No. 1.	£21 per annum	2 years.	Competitive Examination among Junior Students in 1st M.B. SUBJECTS.	Perpetual Course at Victoria University.
	„ No. 2.	£21	——	Competitive Examination among Senior Students in ANATOMY, PHYSIOLOGY, and THERAPEUTICS.	
	Derby Exhibition.	£15	——	Competitive Examination among Fourth- or Fifth-year Students in CLINICAL SUBJECTS	
	Ethel Boyce Fellowship in Gynæcological Pathology.	£100.	1 year.	Vote of Faculty to graduate.	Research.
EDINBURGH UNIVERSITY	*Sibbald Bursaries (1 or 2 annually).	Each £30 per annum.	3 years.	Competitive Examination in Preliminary Subjects among entrants.	Continued Study.
	*Heriot Bursaries (7 for men and 1 for women annually).	Each £30 per annum.	3 years.	Ditto.	
	*Thomson Bursaries (2 annually).	Each £25 per annum.	4 years.	Distinction in Medical Preliminary Examination.	Ditto.
	*Grierson Bursary. „ No. 1.	£20.	1 year.	Ditto.	Ditto.
	*Crichton Bursaries (2 annually).	Each £50 per annum.	4 years.	Distinction in Medical Preliminary Examination, with extra subjects.	Born in Scotland.
	* Mackie Bursary. „ No. 1.	£30 per annum.	2 years.	....	Pecuniary circumstances requiring assistance, &c.
	*Junior J. A. Carlyle Bursary.	£28.	1 year.	Distinction in Class Examinations in ANATOMY and CHEMISTRY.	
	* Coldstream Memorial Scholarship.	£25 per annum.	5 years.	——	Intention to become Medical Missionary, &c.
	* Vans Dunlop Scholarship.				
	„ No. 1.	£100 per annum.	3 years.	First place in MEDICAL PRELIMI- [illegible]	
	„ No. 2.	£100 per annum.	3 years.	[illegible]	Continued study.
	„ No. 3.	£100 per annum.	3 years.	[illegible]	Ditto.
	*Thomson Scholarship.	£40 per annum.	4 years.	[illegible]	
	† Mackie Bursary. „ No. 2.	£30 per annum.	2 years.	....	Pecuniary circumstances requiring assistance, &c.
	† Grierson Bursary. „ No. 2.	£20.	1 year.	Competitive Examination in CHEMISTRY, BOTANY, ZOOLOGY, and PHYSICS.	
	†Senior J. A. Carlyle Bursary.	£28.	1 year.	Distinction in Class Examinations in ANATOMY and PHYSIOLOGY.	
	† Sibbald Scholarship.	£40 per annum.	3 years.	Competitive Examination in CHEMISTRY, BOTANY, ZOOLOGY, and PHYSICS.	Continued study.
	† Vans Dunlop Scholarship.				
	„ No. 4.	£100 per annum.	3 years.	Competitive Examination in PHYSIOLOGY and SURGERY.	Ditto.
	† Neil Arnott Prize	£37 10s.	——	Distinction in Natural Philosophy in the M.A. Examination.	Ditto.
	‡ Grierson Bursary. „ No. 3.	£20.	1 year.	Competitive Examination in ANATOMY [illegible]	Ditto.
	§ Syme Surgical Fellowship.	£100 per annum.	2 years.	[illegible]	
	§ Goodsir Memorial Fellowship.	£100 per annum.	2 years.	[illegible]	

For Students entering on or in their First Year. † For Students entering on or in their Second Year.
‡ For Students entering on their Third Year.
§ For Students entering on or in their Fourth or Fifth Year, or for Graduates.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
EDINBURGH UNIVERSITY *—continued.*	* Leckie Mactier Fellowship.	£80 per annum.	3 years.	Competitive Examination among M.B.'s of not more than three years' standing.	
	* Freeland Barbour Fellowship.	£100.	1 year.	Highest Marks in ANATOMY, PHYSIOLOGY, and PATHOLOGY in Professional Examinations.	One year's research in Midwifery.
	* Allan Fellowship.	About £40.	1 year.	Competitive Examination in CLINICAL MEDICINE and CLINICAL SURGERY.	
	* Vans Dunlop Scholarship.				
	„ No. 5.	£100 per annum.	3 years.	Competitive Examination in ANATOMY and PHYSIOLOGY.	Continued study and research.
	„ No. 6.	£100 per annum.	3 years.	Do. in MATERIA MEDICA (including PHARMACOLOGY).	Ditto
	„ No. 7.	£100 per annum.	3 years.	Do. in PATHOLOGY and FORENSIC MEDICINE and PUBLIC HEALTH.	Ditto.
	* Murchison Memorial Scholarship.	Interest on £1000.	1 year.	Competitive Examination in CLINICAL MEDICINE.	
	* Stark Scholarship in Clinical Medicine.	£112.	1 year.	Competitive Examination in CLINICAL MEDICINE.	Research in Clinical Medicine.
	* Buchanan Scholarship.	£40.	1 year.	Competitive Examination and Class Work in MIDWIFERY and GYNÆCOLOGY.	Work in Gynæcological Ward, &c.
	* James Scott Scholarship.	£32 10s.	1 year.	Competitive Examination and Class Work in MIDWIFERY.	Work in Maternity
	* Ettles Scholarship	£31.	1 year.	Most distinguished M.B., Ch.B. of year	
	* Crichton Research Scholarships in Anatomy, Physiology, Materia Medica, and Pathology.	£100 each per annum.	1, 2, or 3 years.	Competitive Examination for Graduates of the University.	Continued research.
	* Mouat Scholarship.	£55 and Medal.	1 year.	Class and Degree Examinations in PRACTICE OF PHYSIC (MEDICINE).	Continued study in Medicine.
	* Grierson Bursary.				Continued study.
	„ No. 4.	£10.	1 year.	Competitive Examination in MATERIA MEDICA.	
	„ No. 5.	£10.	1 year.	Competitive Examination in PATHOLOGY.	Ditto.
	* M'Cosh Graduate's Bursary and M'Cosh Medical Bursary (for Research)	Income of £5500.	1 year.	Distinction in Professional Subjects, and sufficient knowledge of FOREIGN LANGUAGES.	Research in Medical Schools of Europe.
	* Gunning Victoria Jubilee Prizes (2 awarded annually).	Each £50.	——	Thesis or Original Research in ANATOMY, PHYSIOLOGY, ZOOLOGY, BOTANY, CHEMISTRY, MATERIA MEDICA, SURGERY, PRACTICE OF PHYSIC, PATHOLOGY, OBSTETRICS, and MEDICAL JURISPRUDENCE and PUBLIC HEALTH, respectively.	
	* Theses Gold Medals.	——	——	Candidates for M.D. who present Theses of high merit.	
	* Wightman Prize.	£12.	——	Competitive Reports on Clinical Medicine Cases.	
	* Beaney Prize.	£32 10s.	——	Highest Marks in ANATOMY, SURGERY, and CLINICAL SURGERY, in M.B. and Ch.B. Examinations.	
	* Ellis Prize.	£28 per annum.	——	Essay on ANIMAL OR VEGETABLE PHYSIOLOGY.	
	* Cameron Prize.	Annual Proceeds of £2000.	——	Most valuable addition to PRACTICAL THERAPEUTICS during preceding 5 years.	
	* Milner Fothergill Gold Medal.	About £20.	——	Essay on PHARMACOLOGICAL or THERAPEUTIC SUBJECT.	
	† Mackay Smith Scholarship in Chemistry.	£25 per annum.	2 years.	Competitive Examination in CHEMISTRY among University Students.	Continued study of Chemistry.
	† Houldsworth Scholarship	£40.	1 year.	Competitive Examination in MATERIA MEDICA among University Students or Graduates.	Research in Pharmacology.
	† Mackenzie Bursaries (2 annually).	£20.	... ..	Industry and Skill in PRACTICAL ANATOMY.	
	* Pattison Prize.	About £11 7s. 6d.	......	Competitive Reports on CLINICAL SURGERY CASES.	

* For Students entering on or in their Fourth or Fifth Year, or for Graduates.
† For Students of any year (or standing of candidates not stated).

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
EDINBURGH UNIVERSITY —*continued.*	Dobbie Smith Gold Medal.	....	——	Essay on BOTANICAL SUBJECT.	
	Anderson Henry Prize.	Proceeds of £300 accum for 3 years.	——	Ditto.	
	Gilfillan Memorial Prize.	About £10.	——	Most distinguished Lady Graduate of year.	
GLASGOW UNIVERSITY—QUEEN MARGARET COLLEGE*	Mackintosh Mental Science Bursary.	£31.	1 year.	.....	Open for competition to students of medicine of either sex attending the lectures on Insanity.
	Dr. Thos. Gibson Bursary.	£32.	4 years.	Vacant 1904. Competition by Students at the First Professional Examination.	Open to medical students preparing to be missionaries in connexion with the Church of Scotland.
	Arthur Scholarship.	£20.	3 years.	[illegible]	Restricted to women students only.
	Logan Bursary.	£17.	4 years.	Appointment by the Senate of Glasgow University. Next vacancy 1905	Open to medical students of either sex entering on their first Winter Session of study.
	Armagh Bursary in Medicine.	£45.	3 years.	Competition by Students who are presenting themselves for the Final Examination for the degree of M.A. with Honours in MENTAL PHILOSOPHY in 1903.	Open to students of either sex who have taken the course of study for graduation in Arts and intend to study Medicine.
	Two Taylor Bursaries.	Each £7.	4 years.	Appointment by the Senate. Both vacant in 1905	Open to students of either sex in any faculty.
	Two Dumfriesshire Society Bursaries.	Each £15	4 years.	Appointment by the Dumfriesshire Society	Open to First- and Second-year's Students of either sex in any faculty.
	William Gardiner Bursary.	£13 10s	2 years	Vacant 1903 Competition in PHYSIOLOGY, CHEMISTRY, and PHYSICS of PROFESSIONAL EXAMINATIONS.	Open to medical students of either sex.
	Two Pratt Bursaries.	Each £20.	4 years.	Both vacant 1903	Open to sons and daughters of working men of the Parishes of WISTON and ROBERTON and of LAMINGTON. Tenable in any faculty.
	Brunton Memorial Prize.	£10.	1 year.	Awarded annually to the most distinguished Graduate in MEDICINE of the year.	
	Dobbie Smith Gold Medal.	....	....	Awarded annually for the best essay on any subject within the limits of the science of BOTANY.	All matriculated students of 1902-3 may be competitors.
QUEEN'S COLLEGE, BELFAST	Ten Junior Scholarships for Matriculated Students, two for each of the five years' curriculum.	£20 each.	1 year.	Examination at the commencement of session.	Open to matriculated Medical Students of either sex.
ROYAL COLLEGE OF SURGEONS IN IRELAND, SCHOOLS OF SURGERY	Class Prizes.†	£1 and £2	——	[illegible] Examination [illegible]	
	Carmichael Scholarship.	£15.	——		Open to students of the third year.
	Mayne Scholarship.	£15.	——	[illegible]	Open to students of third and fourth year.
	Barker Bequest.	£21.	——	For best DISSECTION.	Open to all medical students.
ROYAL UNIVERSITY OF IRELAND	Travelling Medical Scholarship.	£100.	——	The subjects are in rotation: (1) ANATOMY AND HISTOLOGY; and (2) PHYSIOLOGY AND PATHOLOGY.	Those who have passed the Medical Degrees Examination either in the year of the scholarship examination or in the year immediately preceding are alone eligible.

---

* Women Students who fulfil the conditions of the Carnegie Trust for the Universities of Scotland may apply to the Secretary of that Trust for payment of their class fees.

† Given in each class at termination of each course of lectures.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ROYAL UNIVERSITY OF IRELAND—*continued.*	Dr. Henry Hutchinson, Stewart Medical Scholarships.				
	" No. 1.	£10.	3 years.	Competition in the subjects of the second examination in MEDICINE.	Candidates must present themselves after the lapse of not more than one medical year from the time of passing the first examination in medicine.
	" No. 2.	£50.	3 years.	Subjects include PSYCHOLOGICAL MEDICINE, DISEASES OF THE NERVOUS SYSTEM, and ANATOMY, PSYCHOLOGY and PATHOLOGY OF BRAIN, CORD, AND NERVES.	Competition among medical graduates of not more than 2 years' standing for proficiency in the knowledge of Mental Diseases. Fee £2.
	Medical Studentship.	£200.	2 years.	PHYSIOLOGY and PHYSIOLOGICAL CHEMISTRY.	Open to Graduates in Medicine of the University. Fee £2.
	Exhibition at first Examination in Medicine.				
	" No. 1.	£20.	......	......	
	" No. 2.	£20.	......	......	
	" No. 3.	£10.	......	......	
	" No. 4.	£10.	......	......	
	Exhibition at second Examination in Medicine.				
	" No 1.	£25.	......	......	
	" No. 2.	£25.	......	......	
	" No. 3.	£15.	......	......	
	" No. 4.	£15.	......	......	
	Exhibition at third Examination in Medicine.				
	" No. 1.	£30.	......	......	
	" No. 2.	£30.	......	......	
	" No. 3	£20.	......	......	
	" No. 4.	£20.	......	......	
	M B., B Ch., and B A.O. Examinations.				
	" No. 1.	£40.	......	......	
	" No. 2.	£40.	......	......	
	" No. 3.	£25.	......	......	
	" No. 4.	£25.	......	......	
QUEEN'S COLLEGE, GALWAY	Eight Junior Scholarships.	£25 each and half fees.	1 year.	Competitive Examination at the commencement of session.	Students of either sex must be of the standing of the year, and may be of any recognised school of medicine.
QUEEN'S COLLEGE, CORK	Eight Junior Scholarships for Matriculated Students, two for each of first four years of curriculum.	£25.	1 year.	Examination at commencement of session.	Open to matriculated students of either sex.
	Blayney Scholarship, in fifth year of curriculum.	£35.	1 year.	Ditto.	Ditto
	Senior Exhibition, in fifth year of curriculum.	£30.	1 year.	Ditto.	Ditto.
	Three Exhibitions in Practical Medicine, Surgery, and Midwifery respectively.	£15 each.	......	Examination at end of medical session.	

THE NAVAL, MILITARY, AND INDIAN MEDICAL SERVICES.

DURING the year some additional changes for the better have been made in the great public services and more are imminent.

In the Naval Medical Service we note that the dearth of candidates at the entrance examination continues. Naval medical officers desire that the pay and allowances shall be increased so as to compare favourably with rates for the officers of the Royal Army Medical Corps, and that promotions may be more in correspondence with those in other branches of the navy. It may be remembered that in 1902 naval medical officers were granted from one year to six months' service according to the time that they held civil appointments as house surgeons. We are able to say that a still further improvement will shortly be made in the same direction, for in the new regulations which are about to appear it will be found that naval medical officers will be able to hold appointments as house surgeons and physicians after they have obtained their commissions in the navy] The official document is not yet in our hands, so that we are not able to quote the details, but we may say that this is by no means the only improvement that will be made in the standing of the naval medical officer. The allowances will be increased, promotion, we hope, will be accelerated, and facilities will be given to officers for withdrawing from the service after a short term of service. The position and pay of the officers of the Royal Army Medical Corps are such that a good class of candidates should be attracted to its ranks. Whether the best class o men will enter knowing that a series of examinations is before them during their service remains to be seen, but the authorities have worked out a scheme which may develop the Royal Army Medical Corps into a really fine service. So far the rulers of the Indian Medical Service have not seen their way to improving the position of its officers; this year there has been some falling-off in the number and quality of the candidates and unless the Indian Government rises to the occasion and considerably increases the pay of the officers and is converted to more liberal ideas on the question of the fees to be accepted by the officers of the service from private patients, both European and native, we fear that the Indian Medical Service will no longer command its former class of medical officer. The India Office, is at all events for the present, continuing to send the probationers to the same course as the lieutenants of the Royal Army Medical Corps in London and subsequently to Netley for further instruction—a scheme which must be beneficial to the officers of both services. A new warrant is, we hear, to be issued for the Indian Medical Service this autumn and we understand that the India Office recognises the fact that the price of skilled medical service has appreciated.

ROYAL NAVY MEDICAL SERVICE.

REGULATIONS FOR THE ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

[illegible]

n for some
ssor of the

qualified to

(2) that he
natural-born
British subjects or of parents naturalised in the United Kingdom;
or constitutional disease or weak-
or disability which may interfere
of the duties of a medical officer in
engage for general service at home
abroad, as required; (5) whether he holds, or has held, any commission or appointment in the public services; and (6) that he is

ualified profession

and his physical-
fficers, who are to
ndard, which will

and in the follow-
rks attainable
paid by each

[illegible]

, 600 marks. A number
each of these *voluntary*
favour of the candi-
jects. The knowledge
importance, all intend-
ch and German. The
general principles of inorganic and organic chemistry; the preparation and properties of the chief non-metallic and metallic elements and their compounds; the preparation, properties and classification of the more important compounds, such as marsh gas, ethylene, acetylene, methyl and ethyl alcohols, glycerin, ether, formic, acetic, lactic and oxalic acids;
s; proteids. The examina-
structure and functions of
ly; the physiology of the
sses of its *digestion;* the mechanics of the circulation and of respiration; the physiology of nutrition, secretion, and excretion; animal heat, the nature of sensation, volition, reflex action, inhibition and influence of the
The examination
iology, and a com-
characters of the larger groups of animals—the protozoa, cœlenterata, vermes, arthropoda, mollusca, echinodermata, and vertebrata—as illustrated by
common types
examination n
phology and
spirogyra, mo
diagnosis of t
The examinati

Promotion.

General of Hospitals and Fleets will be selected from
that rank three years'
declined foreign service
ners of the Admiralty
regard as good and sufficient.
Hospitals and Fleets will be selected

Surgeon, pro
General and
opinion of t
factory. (*b*)
that of Fleet

---

[1] If any doubt should arise on this question the burden of clear proof that he is qualified will rest upon the candidate himself.

cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one in two years; the total number at any one time of Fleet Surgeons holding that rank by such special promotions will not exceed six.

(*a*) Rank as Staff Surgeon will be granted, subject to their Lordships' approval, to surgeons at the expiration of 12 years from the date of entry, provided they are recommended by the Medical Director-General, and have passed such examination as may be required after completion of eight years from the date of entry in the rank of surgeon. (*b*) Special promotions will be made at their Lordships' discretion to the rank of Staff Surgeon in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one a year. The total number at any one time of Staff Surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of eight years' time in rank of surgeon will be dispensed with. (*c*) When a surgeon's promotion to the rank of Staff Surgeon has been retarded by failure to pass the qualifying examination he will, should he pass and be promoted, be dealt with as follows. He will be granted the seniority as Staff Surgeon he would have received had he passed in ordinary course. He will reckon service for increase of full and half pay only from the date of appointment to full pay as Staff Surgeon. If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination. Where delay in passing the qualifying examination may be due to unavoidable circumstances special consideration will be given. (*d*) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the official navy list. Surgeons entered without competition will take seniority next after the last surgeon entered at the same time by competition. (*e*) The examination for promotion to the rank of staff surgeon will be held by the Examining Board, to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, naval hygiene. Earlier promotion to the rank of staff surgeon may be granted to those surgeons who, before entry, have held the post of house surgeon to a civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities l [illegible] during the time they have served in [illegible] from six months to one year's seniority [illegible] ve held their civil appointments as house surgeon, but in no case will more than one year's seniority be granted. This only applies to officers who enter by competition. The medical officers of the navy will also be allowed to serve for a term of a year as house surgeon, house physician, or resident medical officer at a hospital, and the time so served will rank for promotion.

Full Pay and Allowances.

Rank.	Daily.	Yearly.
Surgeon—	£ *s.* *d.*	£ *s.* *d.*
On entry	0 14 0	255 10 0
After 4 years' full-pay service	0 17 0	310 5 0
,, 8 ,, ,, ...	1 0 0	365 0 0
Staff Surgeon—		
On promotion	1 4 0	438 0 0
After 4 years' full-pay service in rank ...	1 7 0	492 15 0
Fleet Surgeon—		
On promotion	1 10 0	547 10 0
After 4 years' full-pay service in rank ...	1 13 0	602 5 0
,, 8 ,, ,, ...	1 16 0	657 0 0
Deputy Inspector-General	2 2 0	766 10 0
Inspector-General	—	1300 0 0 Consolidated.

The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows:—

—	At home.	Abroad.
	£	£
Inspector-Generals of Hospitals	85	130
Deputy Inspectors-General	67	112
Fleet Surgeons and Staff Surgeons	53	112
Surgeons	39	108

An allowance of 5*s.* a day, in addition to full pay, is granted to the senior medical officer, being a Fleet or Staff Surgeon, of a flag-ship bearing the flag of a Commander-in-Chief on a foreign station or of the senior officer commanding the Channel Squadron; and an allowance of 2*s.* 6*d.* a day to the senior medical officer, being a Fleet or Staff Surgeon, of the ship of a Commodore or of a senior officer commanding a foreign station. An allowance of 2*s.* 6*d.* a day may also be granted to the senior medical officer, being a Fleet or Staff Surgeon, in ships carrying the flags of flag officers or the broad pendants of Commodores not commanding stations. The following charge allowances may be granted to medical officers in charge of hospital ships: if above the rank of fleet surgeon, 5*s.* a day; and if of the rank of fleet surgeon or junior, 3*s.* 6*d.* a day. The Fleet and Staff Surgeons serving in the Admiralty and the Marine Rendezvous will be granted the Hospital allowance of £53 a year in addition to the usual lodging money. Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances: two senior officers employed upon this duty, £150 a year each; the junior officer assisting, £50 a year; and the junior officer instructing the Sick Berth Staff, £50 a year. Medical officers employed elsewhere than at a hospital, and not victualled in kind, receive an allowance of 1*s.* 6*d.* a day in lieu of provisions, fuel, and lights. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

Half Pay.

Rank.	Daily.	Year
Surgeon—	£ *s.* *d.*	£
Under 2 years' full-pay service	0 6 0	109 1
After 2 years' full-pay service	0 7 0	127 1
,, 4 ,, ,, ...	0 8 0	146
,, 6 ,, ,, ...	0 9 0	164
,, 8 ,, ,, ...	0 10 0	182 1
,, 10 ,, ,, ...	0 11 0	200 1
Staff Surgeon—		
On promotion	0 12 0	219
After 2 years' full-pay service in rank	0 13 0	237
,, 4 ,, ,, ...	0 14 0	255 1
,, 6 ,, ,, ...	0 15 0	273 1
Fleet Surgeon—		
On promotion	0 17 0	310
After 2 years' full-pay service in rank	0 18 0	328 1
,, 4 ,, ,, ...	0 19 0	346 1
,, 6 ,, ,, ...	1 0 0	365
Deputy Inspector-General—		
On promotion	1 5 0	456
After 2 years' full-pay service in rank	1 7 0	492 1
,, 4 ,, ,, ...	1 9 0	529
Inspector-General	1 18 0	693 1

Candidates will do well to notice that the regulations issued to ap cants do not put any limit on the amount of half-pay service wh they may be compelled to undergo.

Retirement.

Compulsory retirement will be as follows:—

Inspector and Deputy Inspector-General of Hospitals and Fleets.	At the age of 60, or at any age, if he has not served for 5 years. Except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an Inspector-General of Hospitals and Fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.	To be ret irrespective age if fo physically fit for servi
Fleet Surgeon, Staff Surgeon, and Surgeon.	At the age of 55, or at any age, if he has not served for 5 years.	

Voluntary retirement and withdrawal will be allowed as follo (*a*) Every officer will have the option, subject to their Lordsh approval, of retiring after 20 years' full-pay service on the scale retired pay provided in Paragraph 16, or with a gratuity on the sc provided in that paragraph if not eligible for retired pay. (*b*) At expiration of eight, 12, or 16 years' full-pay service every officer will permitted, subject to their Lordships' approval, to withdraw from Naval Service, receiving a gratuity on the scale laid down in Paragr 16. The name of an officer so withdrawing will be removed from the li of the Navy, with which all connexion will then be severed. (*c*) Vol tary retirement and withdrawal at the discretion of their Lordsh will be allowed, as a rule, only when an officer is unemployed serving at home. Under very special circumstances, however, it m be permitted in the case of an officer serving abroad, provided he p his successor's passage to relieve him. (*d*) Applications from offic to retire or withdraw or resign their commissions will receive ca consideration, but no officer will, as a rule, be permitted to resi under three years from the date of entry.

Gratuities and retired pay will be awarded on retirement and wit drawal on the under-mentioned scale (Paragraph 16):—

Rank.	Gratuities.	Daily.	Yearly.
Surgeon and Staff Surgeon—	£ *s.* *d.*	£ *s.* *d.*	£ *s.*
After 8 years' full-pay service	1000 0 0	—	—
,, 12 ,, ,, ,,	1500 0 0	—	—
,, 16 ,, ,, ,,	2250 0 0	—	—
Fleet Surgeon—			
After 20 years' service (including proportion of half-pay time)	—	*1 0 0	365 0
After 24 years' service (including proportion of half-pay time)	—	*1 2 6	410 12
After 27 years' service (including proportion of half-pay time)	—	*1 5 0	456 5 0
After 30 years' service (including proportion of half-pay time)	—	*†1 10 0	547 10 0
Deputy Inspector-General ...	—	1 15 0	638 15 0
Inspector-General	—	2 0 0	730 0 0

* To obtain this rate an officer must hold the commission of Flee Surgeon.

† Or on compulsory retirement at the age of 55.

An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the Service, will receive the half pay of his rank, or, with the consent of their Lordships, a gratuity on the scales given in Paragraphs 16 and 18 (*b*), but such officer will not disability in

ccount of dis will receive—

ratuity on the

heir Lordships

hink fit, (b) if he has less than eight years full pay service uch gratuity as their Lordships think fit, not exceeding the ate of £125 for each year of full pay service (Paragraph 18) n circumstances other than those specified in Paragraphs 17 nd 18 and other than misconduct neglect of duty, &c an fficer retired with less than 20 years service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid

pay service and on

service not amount

dships of granting

es of misconduct is

it and the gratuity

is thought fit An

e eligible if recom

nded by the Medica

meritorious service to rece

warded at their Lordships

ncrease of retired pay or

e liable till the age of 55

ency in a rank not low

fficers will receive special consideration as regards appointments on hore connected with the Admiralty now filled by civilians

Widow's Pension

When an officer retires or withdraws *on a gratuity* his widow and hildren will have no claim to pension or compassionate allowance

Miscellaneous

Though the improvements which have been carried out in he Naval Medical Service are substantial, we think that he department might still show greater regard for the medical officer The cabin accommodation for medical fficers of the navy ought to be improved and senior officers t least serving on men of-war, might well have boats at heir disposal to go on shore

THE ARMY

Consequent upon the issue of the Royal Warrant published n Army Orders dated July 1st, 1898, the Army Medical Staff and the Medical Staff Corps were formed into the Royal Army Medical Corps Medical officers also have been placed as regards sick leave of absence on full pay, on the same footing as that laid down for regimental officers By a Royal Warrant dated Nov 10th, 1891, Art 1208*b* of the Pay Warrant was revised by inserting the words "an officer of our Royal Army Medical Corps" after the words "combatant officer," thus giving medical officers an equal title with combatant officers to reckon time on half pay towards retirement when the half-pay has been due to ill health contracted in the performance of military duty Under the Royal Warrant of July, 1895 time on half pay not exceeding a year may n similar circumstances also reckon towards promotion In the New Royal Warrant it was announced that the late Queen had been pleased to approve of the following ranks for the officers of the Royal Army Medical Corps Colonel, Lieutenant Colonel, Major, Captain, and Lieutenant The Warrant also states that the Medical Staff of the Army shall in future consist of Surgeon Generals (ranking as Major Generals) Officers of the Royal Army Medical Corps holding appointments in the Household Troops are to be borne as seconded officers on the establishment of the Royal Army Medical Corps

REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS (PROMULGATED BY ARMY ORDERS DATED MAY 1ST 1902)

A candidate for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination He must possess a registrable qualification to practise He must complete the subjoined form of application and declaration and submit it to the Director General A M S

Application of a Candidate for a Commission in the Royal Army Medical Corps

1 Name in full

2 Address

3 Date of birth *

4 Registrable qualifications †

5 Academic and other distinctions

6 Name of the Dean or other *responsible authority* of the school in which the candidate completed his course as a medical student

7 Particulars of any commission or appointment held in the public services

8 Date of examination at which the candidate proposes to present himself

Declaration

(N B —A misstatement by the candidate will invalidate any subsequent appointment and cause forfeiture of all privileges for services rendered)

I hereby declare upon my honour that the above statements are true to the best of my knowledge and *belief* and *that I am a British subject* of unmixed European blood

(Signed)

evidence

of his

nce of

The dean of the candidate's school will be requested by the Director General to render a confidential report as to his character, conduct, professional ability, and fitness to hold a commission in the corps and to this report special importance will be attached A candidate whose application is regarded as satisfactory will be directed to appear before the Director General, Army Medical Service, usually on the fourth Thursday of the month preceding the examination. The Director General will decide if the candidate may be allowed to compete for a commission If approved, he will then be examined as to his physical fitness by a board of medical officers The following is the order of the examinations —

1 A candidate for a commission in the Royal Army Medical Corps must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of military duty

2 The examination will be conducted by a board of medical officers

3 The attention of the board will be directed to the following points: (*a*) That the correlation of age, height weight and chest girth is equal or superior to that which is given in the following table —

Physical Equivalents

Age	Height without shoes	Chest	
		Girth when expanded	Range of expansion
	Inches		
21 and upwards	62½ and under 65	35 inches	2 inches
	65 68	35½ „	2 „
	68 70	36 „	2 „
	70 72	36½ „	2½ „
	72 and upwards	37 „	2½ „

against the

the heels

without

touching

x of the

noted in

to stand

is head

posterior

carefully

---

[2] If the health of a surgeon breaks down before he completes 20

	Daily.		
	£	s.	d.
Surgeon-General	2	0	0
Colonel, R.A.M.C., and Household Troops	1	15	0
Lieutenant-Colonel, R.A.M.C., and Surgeon-Lieutenant-Colonel Household Troops			
After 20 years' service	1	0	0
,, 25 ,, ...	1	2	6
,, 30 ,, ...	1	5	0
Lieutenant-Colonel, after having been in receipt of the increased pay (5s. a day additional) for 3 years, or a Brigade Surgeon-Lieutenant-Colonel of the Household Troops—			
Under 30 years' service	1	7	6
After 30 ,, ...	1	10	0
Major, or Surgeon-Major of the Household Troops—			
After 20 years' service	1	0	0
,, 25 years' service, if his service reckoning for promotion is insufficient to qualify him for promotion to the rank of Lieutenant-Colonel under Article 351	1	2	6

	Gratuity.
	£
Major or Captain—	
After 5 years' service in the rank of captain	1000
,, ,, ,, major	1800
,, ,, ,, ,, ...	2500
Surgeon-Lieutenant Colonel or Surgeon-Major of the Household Troops—	
After 15 years' service...	1800
,, 18 ,, ...	2500

Except in the case of a Lieutenant-Colonel, an officer of the Army Medical Service, who, *on voluntary retirement, has served for less than* three years in the rank from which he retires, shall be entitled only to the gratuity or retired pay assigned to the next lower rank.

Retirement on Account of Age or Limitation of Period of Service.

The Director-General of the Army Medical Service shall retire on completion of the term of his appointment; and the retirement of other officers of the Army Medical Servi shall be compulsory at the following ag Colonel, 57; and other officers, 55. A Major 25 years' service; or, if he fails to qualify for promotion, on completion of 20 years' service. A Captain or Lieutenant shall retire on completing six months' service on the Supernumerary list. It shall be competent to the Secretary of State to place a medical officer on the retired list after 30 years' service.

Retirement on Account of Medical Unfitness.

An officer of the Army Medical Service or a medical officer of the Royal Malta Artillery placed on the half-pay list on account of medical unfitness shall, if not previously retired, be retired from the Army at the expiration of five years from the date on which he was placed on the half-pay list, or, if reported by the regulated medical authority to be permanently unfit for duty, on the officer's application, at such earlier date as may be decided by the Secretary of State.

An officer, whether on full pay or half pay, placed in detention as a person of unsound mind, shall be retired from the Army with the retired pay to which he would be entitled if reported by the regulated medical authority to be permanently unfit for duty. If his disability was not caused by military service and he is not entitled to permanent retired pay by length of service he shall receive temporary retired pay equivalent to the half pay and temporary retired pay, if any, which he would have received if his disability had been other than insanity.

Rates of Officers not qualified for Retired Pay on Voluntary Retirement.

If the unfitness was caused by military service retired pay equal to the half pay of his rank. If not so caused, provided the officer has at least 12 years' service, retired pay equal to the half pay of his rank for such period only, not exceeding five years from the date of the officer's retirement from the Army, after five years on half pay under Article 306, as the Secretary of State shall determine according to the merits of the case.

KING'S HONORARY PHYSICIANS AND HONORARY SURGEONS.

Six of the most meritorious officers of the Army Medical Service shall be named Honorary Physicians and six Honorary Surgeons. On appointment as Honorary Physician or Honorary Surgeon an officer under the rank of Colonel in the Royal Army Medical Corps may be promoted to the brevet rank of Colonel. A Lieutenant-Colonel appointed Honorary Physician or Honorary Surgeon shall receive pay at the rate laid down for a Colonel of the Royal Army Medical Corps when qualified for promotion to that rank.

MEDICAL OFFICERS OF THE REGIMENTS OF HOUSEHOLD TROOPS.

Appointment.

A Major or Lieutenant-Colonel of the Royal Army Medical Corps may, on the nomination of the titular colonel of the regiment, be transferred from his corps into the rank of Surgeon-Major or Surgeon Lieutenant-Colonel respectively in one of the regiments of Household Troops.

Pay.

	£	s.	d.
Brigade-Surgeon-Lieutenant-Colonel	1	15	0
Surgeon-Lieutenant-Colonel	1	10	0
Surgeon-Major	1	3	6
After three years' service as such	1	6	0

Promotion.

A Surgeon-Major shall be eligible for promotion to the rank of Surgeon-Lieutenant-Colonel on completing 20 years' service, provided that he has previously qualified in such manner as may be prescribed by the Secretary of State. Promotion to the rank of Brigade-Surgeon-Lieutenant-Colonel shall be made by seniority on the medical establishment of the brigade.

A Surgeon-Major may be promoted to the rank of Surgeon-Lieutenant-Colonel for distinguished service in the field.

EXCHANGES AND TRANSFERS.

An officer of the Royal Army Medical Corps shall be permitted to exchange with another officer of such corps, or with a medical officer of the Household Troops, under such conditions and regulations as may from time to time be made.

A medical officer of the Household Troops may be permitted exchange with an officer of the Royal Army Medical Corps, provi that an officer exchanging into the Royal Army Medical Corps fulfilled any conditions as to service abroad required of officers of s corps.

Exchanges between officers of the Royal Army Medical Corps un the rank of Major and medical officers of the Indian Military Forces, transfers of such officers from either of the above services to the ot shall only be permitted subject to the approval of the Secretary State for India in Council and on the following conditions: (1) T the officers have less than seven years' service; (2) that the se officer exchanging takes the place of the junior on the list and shall be promoted until the officer next above him has been so promot (3) that the junior officer exchanging is placed for seniority next be all medical officers whose commissions have the same date as his ow and (4) that the officer transferred is placed for seniority below medical officers holding the same rank at the time of his transfer shall not be promoted until the officer next above him has b promoted.

An Officer of the Royal Army Medical Corps who has exchanged been transferred from the Indian Military Forces shall reckon, sub *to the conditions of Article 364, his previous service* with the s forces towards promotion, increase of pay, gratuity, and pension.

LEAVE OF ABSENCE.

Full pay during ordinary leave of absence for the period admis in the case of a staff officer may be granted to a medical officer provi that no additional expense is incurred thereby.

When the periods of leave referred to in Article 457 have b exhausted or exceeded in consequence of sickness no further during ordinary leave shall remain due.

SICK LEAVE.

An officer of the Army Medical Staff or Royal Army Medical Co may be allowed full pay during sick leave of absence on the same c ditions as those laid down for regimental officers.

SERVICE ON THE WEST COAST OF AFRICA.

An officer volunteering for, or ordered to, the West Coast of Afr shall receive double pay while actually serving on the coast, and any time spent at Madeira or the Canary Islands on sick leave, or ordinary leave not exceeding 61 days in a year.

For each year's service on the coast a medical officer shall be entit to full pay during a year's leave at home, and *for every additio* period beyond a year he shall have an equivalent extension of full during leave.

Each year or portion of a West Coast of Africa an officer of the Royal Army double towar voluntary retirement or reti e has served *months on the coast. In ordinary* cases the 12 months may be ma up of two separate periods of not less than six months each; and if officer leaves the coast on account of sickness he may reckon any peri of service on the coast, however short, in order to make up the months' coast service which is required to entitle him to count h service double. Except when the officer has been invalided, any broke period, if amounting to less than six months' of service on the coa and leave on full pay, shall not reckon double under this article.

WIDOWS' PENSIONS.

Widows' pensions and compassionate *allowances for* children a other relatives of deceased officers are given under certain conditio specified in the Royal Warrant for Pay and Promotion. There is al an Army Medical Officers' Widows' Annuity Fund on mutual assuran principles.

INDIAN MEDICAL SERVICE.

The grades of officers in the Indian Medical Service ar the same as those of the Army Medical Service and Roya Army Medical Corps.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR ADMISSIO TO THE INDIAN MEDICAL SERVICE.

Candidates must be natural born subjects of His Majesty, betwe 21 and 28 years of age at the date of the examination, of sound bodi health, and in the opinion of the Secretary of State for India in Counc in all respects suitable to hold commissions in the Indian Med Service. They may be married or unmarried. They must posse diploma or diplomas entitling them under the Medical Acts to practis both medicine and surgery in Great Britain and Ireland.

They must subscribe and send in to the Military Secretary, Ind Office, Westminster, *so as to reach that address by the date fixed in th advertisement of the examination*, a declaration according to the annexed form.

Declaration and Schedule of Qualifications to be Filled up by Candidates.

* I ....

.... Years of Age in .... last, *vide accompanying Certificate*, a Candidate for employment in His Majesty's Indian Medical Service, do hereby attest my readiness to engage fo that service, and to proceed on duty *immediately* on being gazetted.

I declare that I labour under no Mental or Constitutional Disease, nor *any imperfection* or disability that can interfere with the most efficient discharge of the Duties of a Medical Officer.

† I received my Medical Education and completed my course as Medical Student at...

‡ I have the Degree of A.M. or A.B. from the ....

I have the Degree of M.D. or M.B. from the ....

I have a Licence to Practise Medicine from the ....

I have a Diploma in Surgery from the ....

§ I have a Licence to Practise Surgery from the ....

....

....

(Signature at full length) ....

(Date)..

(Place of residence) ....

[illegible] examination are to [illegible]

tated [illegible] has served in the [illegible] ordinate Medical [illegible]

[illegible] by such evidence as [illegible] ptism which does not [illegible] mendation from some [illegible] his own family—to the [illegible] and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate or a minister of the religious denomination to which the candidate belongs *c A certificate of registration*, under the Medical Acts, of the degrees, diplomas, and licences possessed by the candidate *d* A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital or the ophthalmic department of a general hos[illegible] the errors of refraction [illegible] the right of deciding [illegible] pete for a commission in [illegible]

[illegible] e determined by a Board [illegible] tify that his vision is [illegible] tests laid down by the [illegible] e from all other organic [illegible] other disability likely to unfit him for military service in India The standard of eyesight is the same as for the Royal Army Medical Corps and the physical examination is in all respects the same (see under Royal Army Medical Corps) Candidates who pass the physical examination will be required to pay a fee of £1 before being permitted to compete No [illegible] will be [illegible] and the highest number of marks attainable will be distributed as follows —

		Marks
1	[illegible]	1200
2.	[illegible]	1200
3	[illegible]	600
4	[illegible]	600
5	[illegible]	600
6	[illegible] tany or [illegible]	600

N B —The examination in medicine and surgery will be in part practical and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bed [illegible] be limited to the elements c [illegible] medicine pharmacy, and pr [illegible] considered eligible who shall [illegible] the marks obtainable in each [illegible] aggregate marks for all the subjects

After passing this examination the successful candidates will be required to atte[illegible]

[illegible] liable to employment in any part of India according to the exigencies of the service Examinations for admission to the service usually take place twice in the year—i e, in January and July.

At Netley the lieutenants on probation for the Indian Medical Service are required to attend the Royal Army Medical Corps mess and to conform to the rules and regulations thereof. The Professorship of Military Medicine is held by Colonel K Macleod, M D, I M.S The lectures on Military Medicine treat of tropical and other diseases to which soldiers are exposed in the course of their service, the mortality and invaliding by disease, in peace and war, at home and abroad, the management of lunatics under the conditions of military service, &c. The course of six lectures on Lunacy and Military Asylum work is delivered at the Netley Lunatic Asylum by Lieutenant-Colonel A G. Kay, M B The probationers are detailed for duty in the wards of the hospital under the officers in charge of the Medical and Surgical Divisions of the Hospital. There they are taught practically the details of the management of patients in a military hospital, the registration of their diseases, the duties of invaliding, the modes of filling up the regulation statistical returns, and other service documents The probationers are provided with quarters and are extra members of the mess at Netley. They are required to provide themselves with the regulation undress and mess uniform of a Lieutenant of the Indian Medical Service, with Sam Browne belt, but without the sword After having passed through the course of instruction they are required to pass a qualifying examination in the subjects taught in the school, and their position on the list of those recommended for commissions is determined by the combined results of the competitive and final examinations Of the nine prizes formerly open to competition in the old Army Medical School at Netley, seven prizes have been transferred to the Medical Staff College in London and re distributed as follows: The Herbert Prize, the Parkes Memorial Bronze Medal, and the de Chaumont prize are now set aside to be competed for by the lieutenants-on-probation of the Royal Army Medical Corps, while the Webb prize and the Pathology prize are competed for by the young officers of both services The two Montefiore prizes are open to the competition of the lieutenants-on-probation of the Indian Medical Service and the Martin Memorial Gold Medal is competed for by the lieutenants on-probation for the same service after the course in Military Medicine and Lunacy at Netley The Maclean prize was withdrawn on the abolition of the Army Medical School, and foundation of the Medical Staff College The Herbert Prize of £20 is awarded [illegible] obtained the highest [illegible] de Chaumont prize of books to the [illegible] second place in Hygiene, the Montefiore Medal and £21 are awarded for Military Surgery, the Montefiore Second Prize, a cheque to the lieutenant on probation who obtains the second highest number of marks in this branch; a prize of books is given for the highest number of marks gained in Pathology, and the Marshall Webb prize of £5 and a bronze medal is awarded for Hospital Administration

At the close of the short Netley Session those lieutenants-on probation who have obtained one-third of the possible total of marks and have satisfied the authorities that they possess the necessary skill, knowledge, and character for permanent appointment are recommended for commissions as Lieutenants in the Indian Medical Service[4]

Officers on appointment are, when possible, provided with passage to India by troopship; when troopship accommodation is not available passage at the public expense is provided by steamer, or a passage allowance granted if preferred A charge for messing during the voyage is made at the rate of 2*s* a day This payment does not include the cost of liquors, which are charged for as extras. Any officer who may neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of leaving Netley or within 14 days of the termination of his hospital appointment if the Secretary of State has permitted him to hold one will be considered as having forfeited his commission unless special circumstances shall justify a departure

---

[3] For the present it has been arranged that two months of the course will [illegible] and tropical medicine, and in asylum and hospital administration While at Netley they will also undergo a course of instruction in company and ambulance drill and in other military duties

[4] [illegible] from the date on which the course of instruction for [illegible] probation commences.

from this regulation. A Lieutenant's commission is dated from the day on which the course of instruction commences in London, but his rank will not be gazetted until he has passed the final examination. Lieutenants are promoted to the rank of Captain on completing three years' full-pay service, Captains to the rank of Major after 12 years' full-pay service, and Majors to the rank of Lieutenant-Colonel after 20 years' full-pay service. No examination to qualify for promotion is required. All promotions to higher grades are given by selection for ability and merit. In case of distinguished service in the field a medical officer may be at once promoted from any rank to the one next above it, remaining supernumerary in the higher rank until he would have been promoted in ordinary course or until selected for further promotion for which he is eligible. The ages for compulsory retirement are the same as those for the Royal Army Medical Corps. Officers of the Indian Medical Service below the rank of Colonel may be granted: 1. Privilege leave under such regulations as may from time to time be in force. 2. Leave out of India for no longer period than one year, capable of extension to two years' absence from duty, on the following pay:—After arrival in India, on first appointment, £200 a year; after the commencement of the fifth year's service for pension, £250 a year; after the commencement of the tenth year's service for pension, £300 a year; after the commencement of the fifteenth year's service for pension, £400 a year; after the commencement of the twentieth year's service for pension, £450 a year; and after the commencement of the twenty-fifth year's service for pension, £500 a year. 3. Leave in India, but for the period of one year only, on full military pay and half the staff salary of appointment. No extension of leave involving absence from duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay. An officer unable on account of the state of his health to return to duty within the maximum period of two years' absence, unless he is specially granted an extension of leave without pay, is placed on temporary half-pay or the retired list, as the circumstances of the case may require. An officer is also liable to be placed on half-pay or the retired list should his health require an undue amount of leave, whether in or out of India. Leave may be granted at any time, but solely at the discretion of the civil or military authorities in India under whom an officer may be serving. Officers of the Administrative grades may be granted one period of leave not exceeding eight months during their tenure of appointment. An officer on leave is required to join at once on being recalled to duty unless certified by a medical board as unfit to do so.

Pay and Allowances.*

The rate of pay drawn by Lieutenants of the Indian Medical Service previous to arrival in India is 14s. a day, but a Lieutenant (1) who has been permitted by the Secretary of State to hold a hospital appointment will receive no pay while holding it; (2) who is detained by illness in this country will be paid at the rate of £200 a year from the date on which he would otherwise have embarked until the date of embarkation, and at the rate of 14s. a day during the voyage to India.

Pay at the above rate is issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate is also made prior to embarkation, which is adjusted in India.

The following are the rates of "Indian pay and allowances" which will be drawn by officers hereafter appointed to the Indian Medical Service †:—

Rank.	Years' service.	Indian pay and allowance per mensem.	
		When not holding an appointment carrying higher pay.	
		Rs. a. p.	
Lieutenant - Colonel (Senior)		900 0 0	
Lieutenant-Colonel...	25 and over	888 12 0	
Lieutenant-Colonel...	20 "	852 3 7	
Major	15 "	677 6 11	
"	12 "	640 14 6	
		A. When not receiving any staff allowance.	B. When receiving staff allowance in addition.
		Rs. a. p.	Rs. a. p.
Captain	10 "	500 0 0	450 0 0
"	5 "	450 0 0	400 0 0
Captain and Lieutenant	under 5	350 0 0	300 0 0

On first appointment they will only
and allowances" from the date of thei

Officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive at present the following consolidated salaries:—

	Rs. per mensem.
Surgeon-General	2700 to 2200
Colonel ... ... from ...	2250
to	1800
Lieutenant Colonel in substantive charge of a native regiment	1000 or 1100 with Rs. 90 horse allowance in cavalry regiments.
Major in substantive charge of ditto	800 with Rs. 90 ditto.
Captain above 5 years' full-pay service in substantive charge of a native regiment...	600 with Rs. 60 ditto.
Captain or Lieutenant under 5 years' ditto in substantive charge of a native regiment...	450 with Rs. 60 ditto.

The salaries of other substantive medical appointments in the Civil, and Military Departments are consolidated and vary from Rs. 1800 to Rs. 400 per mensem.

Medical charges are of two kinds—substantive and officiating. The first is held by an officer as his fixed permanent appointment. For this he is entitled to the monthly consolidated pay as above shown. An officiating charge is held by an officer who is acting temporarily in an appointment during the absence of an officer whose substantive charge it is. The officer thus officiating receives not the consolidated pay of the appointment, but the Indian pay allowance of his own grade, plus half the staff pay of the appointment in which he is officiating (plus half the staff pay of his own appointment, if he have one). The staff pay of an appointment is the difference between the Indian pay and allowances and the consolidated pay of the permanent incumbent. The extra allowance for an officiating charge cannot be less than Rs. 100 a month.

Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem.

Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Except in the administrative grades and in certain special appointments officers are not debarred from taking private practice as long as it does not interfere with their proper duties.

Tenure of Office in Administrative Grades.

The tenure of office of Surgeon-Generals and Colonels is limited to five years.

Colonels, if not disqualified by age, are eligible either for employment for a second tour of duty in the same grade or for employment in the higher grade of Surgeon-General by promotion thereto.

Absence on leave in excess of eight months during a five years' tour of duty involves forfeiture of appointment.

Surgeon-Generals and Colonels, on vacating office at the expiration of the five years' tour of duty, are permitted to draw *in India* an unemployed salary of Rs. 1200 per mensem in the former, and Rs. 900 in the latter case, for a period of six months from the date of their vacating office, after which they are placed while unemployed on the following scale of pay:—

—	Surgeon-General. Per diem.	Colonel. Per diem.
	£ s. d.	£ s. d.
After 30 years' service on full pay	2 5 0	1 14 0
" 25 " " "	2 5 0	1 10 0
" 20 " " " or on promotion, should this period of service not be completed...	2 0 0	1 8 0

A Surgeon-General or Colonel who has completed his term of service and has reverted to British pay may reside in Europe, at the same time qualifying for higher pension.

Retiring Pensions and Half-pay.

Officers of the Indian Medical Service will be allowed to retire on the following scale of pension on completion of the required periods of service:—

After 30 years' service for pension...	£700 per annum + £350 after five years' active employment in India as a Surgeon-General, or + £250 per annum after five years' active employment as a Colonel
" 25 " " "	£500 per annum.
" 20 " " "	£365 "
" 17 " " "	£292 "

Service for pension reckons from date of first commission and includes all leave taken under the leave rules.

Time (not exceeding one year) passed on temporary half pay reckons as service for promotion and pension, in the case of an officer placed on half pay on account of ill-health contracted in the performance of military duty.

Officers of the Indian Medical Service are liable after retirement on pension before completing 30 years' service to recall to military duty in case of any great emergency arising up to 55 years of age.

All officers of the rank of Lieutenant-Colonel and Major are placed on the retired list at the age of 55, and all Surgeons-General and Colonels at the age of 60.

Officers placed on temporary or permanent half-pay will be granted the British rate of half-pay of their military rank, as under:—

Rank.	Rates of Half-pay ‡	
	Per diem.	Per annum.
	s. d.	£ s. d.
Lieutenant-Colonel (Senior)	11 0	200 15 0
Lieutenant-Colonel		
Major	9 6	173 7 6
Captain	7 0	127 15 0
Lieutenant	3 0	54 15 0

INVALID PENSIONS.

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may, after he has been two years on temporary half-pay, be granted an Invalid Pension on the following scale:—

	Per annum.
After 16 years' pension service	£272
" 15 " " "	252
" 14 " " "	232
" 13 " " "	212
" 12 " " "	192

* No staff or regimental allowance can be drawn until the lower standard examination in the Hindustani has been passed As many [illegible] alteration.

† [illegible] who are not statutory natives [illegible] allowance to compensate [illegible]. The allowance consists of [illegible] the difference between their salaries converted at (1) 1s. 6d. the rupee, and (2) the average market rate for each quarter.

‡ Officers cannot retire *in India* on half pay (No. 45, Feb 28th, 1865). (This is a rule that should be abolished)

WOUND PENSIONS.

Officers are entitled to the same allowances on account of wounds and injuries received in action as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

FAMILY PENSIONS.

The claims to pension of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in [illegible]

HONOURS AND REWARDS.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other Orders, British and Indian, and for good service pensions. Six of the most meritorious officers are named Honorary Physicians and six are named Honorary Surgeons to His Majesty. On appointment as Honorary Physician or Surgeon an officer below the rank of Colonel is promoted to that rank, remaining supernumerary until absorbed.

NOTE.—The *following is a list of recognised Civil Hospitals.*—England and Wales.—[illegible] Cross Hospital, Guy's [illegible] pital, Middlesex Hosp[illegible] St Thomas's Hospital, [illegible] Hospital. Birminghar[illegible] Bristol: Royal Infirma[illegible] brooke's Hospital. Car[illegible] mary. Liverpool: Royal Infirmary and Southern Infirmary Manchester. Royal Infirmary. Newcastle-on-Tyne: Royal Infirmary Oxford Radcliffe Infirmary. Sheffield: Royal Infirmary and Royal Hospital. Scotland.—Aberdeen Royal Infirmary. Dundee: Royal Infir[illegible]y. Glasgow: Royal Infirmary and [illegible]fast: Royal Victoria Hospital Cork[illegible]mary. Dublin: the Adelaide Hosp[illegible]l, the Jervis Street Hospital, the [illegible] Meath Hospital, Mercer's Hospital [illegible]nd Hardwicke Hospital, St Vinc[illegible] Hospital, and Dr. Steeven's Hospital. Galway: The County Hospital and the Union Hospital.

PUBLIC HEALTH.

INSTRUCTION FOR DIPLOMAS IN STATE MEDICINE.

ENGLAND.

THE following recommendations, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," were adopted by the General Medical Council in 1902 and 1903. The regulations require that—"(1) A period of not less than twelve months shall elapse between the attainment of a registrable qualification in Medicine, Surgery, and Midwifery and the examination for a diploma in Sanitary Science, Public Health, or State Medicine; (2) every candidate shall have produced evidence of having attended, after obtaining a registrable qualification, during a period of six months, practical instruction in a laboratory, British or foreign, approved of by the body granting the qualification, and in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught; (3) every candidate shall have produced evidence that, after having obtained a registrable qualification, he has for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) practically studied the duties, routine and special, of Public Health administration either under a whole time medical officer of health or a medical officer of health who is also a teacher in public health in a recognised school, or in England and Wales under the medical officer of health of a county or of a single sanitary district of 50,000, or in one or more districts of 30,000 in Scotland or Ireland, or under a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, or command recognised by the General Medical Council, provided that the six months may be *reduced to three* if a candidate produces evidence that after obtaining a registrable qualification he has for three months attended a course of recognised instruction in sanitary law, sanitary engineering, vital statistics and other subjects bearing on Public Health administration; (4) every candidate shall produce evidence that after having obtained a registrable qualification he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (5) the examination shall have been conducted by examiners specially qualified, and shall comprise laboratory work as well as written and oral examination; (6) the rules as to study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890." It was enacted by Section 18 (2) of the Local Government Act [England and Wales], 1888, that after Jan. 1st, 1892, no such appointment (that of medical officer of health) may be made in any county, or in any district or combination of districts with a population of 50,000 or upwards, unless the officer—having, of course, qualifications in Medicine, Surgery, and Midwifery—is registered as the holder of a diploma in Sanitary Science, Public Health, or State Medicine under Section 21 of the Medical Act, 1886, or has during any three consecutive years preceding 1892 been medical officer of a district or combination of districts with a population of 20,000 at least, or has for three years previously to August 13th, 1888, been a medical officer or inspector of the Local Government Board. With the sanction of the Local Government Board the same person may be appointed medical officer for two or more districts.

The regulations in question as to study may be procured at the office of the General Medical Council in London.

London University.—Sanitary Science is included under the head of State Medicine in the M.D. degree, and a certificate has to be produced showing that a course of practical instruction has been attended for the prescribed period, and that the course has included such chemical, microscopical, and meteorological work and exercises as more especially relate to sanitation. The attendance includes six months' practical instruction in a laboratory and six months' instruction in public health administration under the supervision of a medical officer of health, and three months' attendance on the practice of a hospital for infectious diseases.

Cambridge University.—Two examinations in so much of State Medicine as is comprised in the functions of medical officers of health will be held during the year 1903–4 in Cambridge. Each examination will consist of two parts. Part I. will begin on the first Tuesday in April and October respectively; Part II. will begin on the second Tuesday in April and October respectively; and each part will end on the following Thursday. Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of registrable qualification and the time when he presents himself for either part of the examination; (2) he produce evidence of having, after obtaining a registrable qualification, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods *of administration; (3)* he produce evidence of having, after obtaining a registrable qualification, attended during a period of six months on one or more courses, approved by the Syndicate, of practical laboratory instruction in Chemistry, Bacteriology, and the Pathology of those diseases of animals that are transmissible to man; (4) he produce evidence of having, after obtaining a registrable qualification, for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) In England and Wales either the medical officer of health of a county or of a single sanitary district having at the date of the last census a population of not less than 50,000 or the medical officer of health of a combination of two or more sanitary districts having collectively at the date of the last census a population of not less than 35,000; or (*b*) in Scotland or Ireland the medical officer of health of a county or of one or more sanitary districts having at the date of the last census a population of not less than 30,000; or (*c*) a medical officer of health who is a teacher in the department of public health of a recognised medical school. A certificate of an assistant officer of health of a county or a large urban district may be accepted, provided the medical officer of health of a county or district consents to the assistant officer giving such instruction. Any candidate who shall produce evidence that he has himself held an appointment as medical officer of health under conditions not requiring the possession of a special sanitary diploma shall be exempt from this regulation. The provisions as to previous study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890. The first part of the examination will have reference to the general principles of sanitary science and will comprise the following subjects. The elements of chemistry and physics: methods of chemical analysis and in particular the analysis of air and water. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics in their application to warming, ventilation, water-supply, and drainage. The geological and other conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of water-supply. The elements of meteorology in relation to health. Principles of building construction in their application to dwellings, hospitals, and schools. The disposal of sewage and refuse and the general principles of sanitary engineering. Disinfectants, their chemistry and use. The chemical and microscopical examination of foods and the detection of the commoner forms of contamination. The methods of bacteriological investigation and analysis. The bacteriology of air, water, food, and soil. The general pathology of infection, and of the diseases of animals that are transmissible to man. The second part of the examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise the following subjects. Laws and Statutes relating to Public Health.[1] The model by-laws of the Local Government Board. Sanitation of dwellings, schools, factories, and workshops, and of villages and towns. Inspection of slaughter-houses, cowsheds, &c. Inspection of meat and other articles of food. General epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects on health of overcrowding, vitiated air, impure water, polluted soils, and bad or insufficient food. Unwholesome trades and occupations, and the diseases to which they give rise. Nuisances injurious or dangerous to health. The effects on health of season and climate. The principles and methods of vital statistics in relation to public health. (N.B.—The foregoing schedule is not to be understood as limiting the scope of the examination, which will include every branch of sanitary science. No candidate will be approved by the examiners who does not show a high proficiency in all the branches of study, scientific and practical, which bear upon the duties of medical officers of health.) The examination in both parts will be oral and practical, as well as in writing. One day at least will be devoted to practic laboratory work and one day to oral and practic examination in, and reporting on, subjects connected wi outdoor sanitary work. Candidates may present themselv for either part separately or for both together at the option; but the result of the examination in the case of a candidate will not be published until he has passed to th satisfaction of the examiners in both parts. Every candida will be required to pay a fee of £6 6s. before admission re-admission to *either part* of the examination, b candidates who have presented themselves before th year 1896 will be re-admitted to either part on pa ment of a fee of £5 5s. Every candidate who h passed both parts of the examination to the satisfa tion of the examiners will receive a diploma testifying to h competent knowledge of what is required for the duties of medical officer of health. All applications for informatio respecting this examination should be addressed to D Anningson, Walt-ham-sal, Barton-road, Cambridge, Secreta to the Syndicate. Candidates who desire to present them selves for the examination must send in their applications forms supplied for the purpose and transmit them with th fees to Mr. J. W. Clark, Registrary, University of Cam bridge, for the April examination on or before March 17 and for the October examination on or before Sept 15 The prescribed certificates must be sent to the Registrary as to reach him not later than 10 A.M. on March 29th an Sept. 27th respectively. Cheques should be crossed "Barcla and Co., Ltd." The fee for either part of the examin tion cannot be returned to any candidate who fails to prese himself; but he will be entitled, without an additional fe to be a candidate on one subsequent occasion. Candidat must before admission to either part of the examinatio produce evidence of having satisfied provisions (1), (2), an (3), and before admission to Part II. having satisfied pr visions (4), above mentioned. The following is a list o colleges and schools of medicine at which the courses o laboratory instruction have, for the purposes of this examin tion, been already approved by the State Medicine Syndicate The Chemical and Pathological Laboratories, Cambridge the London Hospital Medical College; St. Bartholomew' Hospital Medical College; King's College, London University College, London; the Army Medical Sta College; Owens College, Manchester; the University o Durham Medical School, Newcastle-on-Tyne; Maso College, Birmingham; University College and Southern Hospital School, Liverpool; St. Mary's Hospital Medica College; Charing-cross Hospital College; Westminste Hospital Medical School; University College, Bristol Yorkshire College, Leeds; Guy's Hospital Medical School St. Mungo's College, Glasgow; Edinburgh University Publ Health Laboratory; Middlesex Hospital Medical School Royal Southern Hospital, Liverpool; Royal Colleges, Edinburgh; Surgeons' Hall, Edinburgh; British Institute of Preventive Medicine; Trinity College, Dublin; Queen's College, Belfast; St. Thomas's Hospital Medical School; University College, Cardiff; University College, Sheffield; Medical School, Catholic University, Dublin, and St George's Hospital Medical School.

University of Oxford.—An examination, open to all registered medical practitioners, conducted partly in writing, partly *vivâ voce*, and in each subject partly practical, is held in Michaelmas Term in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The fee for admission to the examination is £10. The names of candidates must be sent to the Secretary to the Boards of Faculties, to whom applications for any further information should be made

University of Durham.—Sanitary Science is the special object of the degrees in Hygiene. Candidates for the degree of Bachelor in Hygiene (B. Hy.) must be at least twenty-two years of age, registered, and a graduate in Medicine of a recognised university, and at least twelve months shall have elapsed after the date when the candidates obtained their first registrable qualification in Medicine, Surgery, and Midwifery before presenting themselves for examination. They shall spend six months at Newcastle-upon-Tyne studying Comparative Pathology, Practical Bacteriology, Outdoor Sanitary Work, Infectious Diseases, Sanitary Chemistry, and Physics. They have to pass an examination in Sanitary Chemistry, Physics, Comparative Pathology, Sanitary Legislation, Vital Statistics, Nosology, Climatology, Meteorology, Distribution of Health and

---

[1] All candidates will be examined in the provisions of the English Statutes relating to public health, but any candidate will be given an [illegible] cial knowledge of other sanitary laws in [illegible] Empire, provided that, *when applying for* [illegible] *he give notice* of his desire and indicate the special law he proposes to offer.

Disease, Sanitary Medicine and Practical Hygiene. The fee for the examination for the degree of B.Hy. is 10 guineas, and for the degree £6 6*s*. The examination is divided into two parts and candidates may present themselves for either part or both together at their option. Candidates for the degree of Doctor in Hygiene (D.Hy.) must have acquired the degree of Bachelor in Hygiene, must for two years subsequently have been engaged in practice as a medical officer of health and must write an essay upon some practical hygienic subject. The fee for the examination for the degree of D.Hy. is £5, and for the degree £6 6*s*. The regulations for education and examination for the Diploma in Public Health (D.P.H.) are the same as those for the degree of Bachelor of Hygiene, except that the candidate is not required to be a graduate in Medicine of a recognised University, and the course of study need not be passed at Newcastle-upon-Tyne. The fee for the examination and Diploma in Public Health is 10 guineas.

Victoria University.—An examination in Public Health is held twice yearly under the following regulations: The examination is in two parts, and is written, oral, and practical. Candidates before entering for either part of the examination must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates of having attended courses of instruction in Public Health in a college of the University, or in a college or medical school recognised for this purpose by the University; of having attended, after obtaining a registrable qualification, during at least six months, practical instruction in a laboratory approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man; of having, after obtaining a registrable qualification, attended for three months the clinical practice of a hospital for infectious diseases; of having, after obtaining a registrable qualification, practically studied the duties of outdoor sanitary work for not less than six months under the medical officer of health of a county or of a large urban district. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination The fee for each part is £5 5*s*., and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3*s*. Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examinations will begin about the middle of January and the middle of July in each year.

Royal College of Physicians of London and the Royal College of Surgeons of England. — The following are the regulations for obtaining the Diploma in Public Health: Section 1: Candidates must be registered under the Medical Act. The examination consists of two parts. The fee for each part is £6 6*s*. A candidate intending to present himself must give fourteen days' written notice to the Secretary, at the Examination Hall, Victoria Embankment, W.C. A candidate registered under the Medical Act on or before Jan. 1st, 1890, will be admissible to Part I. of the examination on producing evidence of being at least twenty-three years of age, and to Part II. on producing evidence of being at least twenty-four years of age. A candidate registered under the Medical Act after Jan. 1st, 1890, will be admissible to examination in Part I. on producing evidence (1) of having been in possession of a registrable qualification in Medicine, Surgery, and Midwifery for at least twelve months; (2) of having attended, after obtaining such registrable qualification, practical instruction in a laboratory recognised by the [illegible] months; [illegible] A candi- [illegible] on producing evidence (1) of having been associated day by day in the duty, routine and special, of Public Health administration during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Par. 2 for Part I.) under the supervision of a medical officer of health who fulfils certain conditions which can be ascertained on application to the secretary; (2) of having attended the clinical practice of a [illegible] at least twenty-four years of age.

King's College, London. — The necessary Laboratory Instruction to comply with the regulations of the various Universities and other Medical Licensing Bodies will be given by Professor William R. Smith and Professor Hewlett. The syllabus includes Physics, Chemistry, Microscopy; Parasites and other Organisms Infesting Food-stuffs or the Human Body; Bacteriology, including the Cultivation and Recognition of Micro-organisms. The course will last six months, four months of which will be spent in the Laboratories of Public Health, and two months in the Bacteriological Laboratory. Fee, 20 guineas, payable in advance in the College office. Under the direction of Professor William R. Smith and Mr. D. Somerville, the demonstrator, practical instruction will be given in the laboratories in the methods of Analysis of Air, Water, Foods, &c., and the Detection of Poisons. Fees, one month, £4 4*s*.; three months, £10 10*s*. The laboratories are also available for original investigations and practical work in Public Health, and are open daily from 9 A.M. to 4 P.M. and on Saturdays to 1 P.M. In Public Health special classes will be held during the winter session by Professor W. R Smith; fee, £12 12*s* The Bacteriological Laboratory is open daily for original research under the direction of the professor and demonstrator of General Pathology and Bacteriology. For one month for original research, 5 guineas. For a longer period by arrangement. For one month for private study, with supervision, 5 guineas. For a longer period by arrangement. Practical course for a month, with attendance on lectures, 5 guineas. For a year, 30 guineas. Professor H. G. Seeley will deliver a course of six lectures on Physiography.

University College, Bristol.—A course of lectures on the Principles and Practice of Hygiene is given at the College by Dr. D. S. Davies, on Mondays and Fridays, 10–11 A.M., commencing on the first Monday in October. A six months' course of Practical Laboratory Instruction is given at the Western Counties' Laboratory, Park-street, by Mr. F. Wallis Stoddart, commencing on the first Wednesday in October, and including the subjects of Chemistry and Physics. Instruction in Bacteriology is given at the College by Professor A. F. Stanley Kent, Demonstrations on the provisions and practical working of the various Acts relating to Public Health and on the Orders, Circulars, and By-laws of the Local Government Board are delivered by Mr. J. C Heaven on Mondays and Fridays, commencing on the first Monday in October. Gentlemen taking out the course are admitted to practical outdoor sanitary work during the session, under the supervision of the medical officer of health for the city and port of Bristol. They are considered as pupil assistants and are required to carry out diligently such of the duties of medical officers of health as they may be directed to undertake. Facilities are afforded during the course for the study of those diseases of the lower animals which are communicable to man. Fee for the entire course, 25 guineas.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University and they must, in addition, have attended a three months' course of *Geology in the University*. The following are the regulations for Diploma in Public Health (general conditions):—1. All candidates must be registered under the Medical Act. 2. The examinations will be held in the months of January and June, and will consist of two parts. No candidate will be allowed to pass Part II. until he has passed Part I. 3. Candidates may enter for Parts I. and II separately or at the same time. 4. The examination in each part will be written, oral and practical. 5. Candidates intending to present themselves for either part of the examination must give notice in writing to the registrar of the University on the date prescribed in the calendar. 6. The fee for each part of the examination is

£5. The conditions of admission to the examinations are identical with those recently approved by the General Medical Council.

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College and pursued the further course of study approved by the General Medical Council in December, 1902 will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

SCOTLAND.

Edinburgh University.—Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh, viz., Bachelor of Science in Public Health and Doctor of Science in Public Health. Candidates for the degree of B.Sc. in Public Health must be graduates in Medicine of a University of the United Kingdom, or of some other University recognised for the purpose, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least twenty hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University; they must also have attended courses of instruction in Physics and Geology in some Scottish University. Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than eighteen months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of forty lectures at least; one of which courses shall deal with medicine and the other with engineering, each in its relation to public health. They must also give evidence that, subsequent to graduation in medicine, (1) they have during three months, which must be separate and distinct from the period of laboratory instruction, been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) a medical officer of health recognised for this purpose by the General Medical Council; (*b*) a sanitary staff officer of the Royal Army Medical Corps, having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council; (2) that they have attended during three months the practice of a hospital for infectious disease, at which opportunities are afforded for the study of methods of administration; and (3) that they have had three months' instruction in mensuration and drawing. The subjects of examination include Laboratory work, Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics. Graduates who have held the degree of B.Sc. in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D.Sc. in Public Health in that University. They must then present a Thesis and pass an examination in Public Health. The fees are £3 3*s*. for the First and £3 3*s*. for the Second B.Sc. Examinations, and £10 10*s*. for the degree of D.Sc.

University of Aberdeen.—The Diploma in Public Health

University in one or more of the subjects embraced in the examination for the diploma. The diploma is conferred after an examination in Public Health held in March and July of each year. Candidates must send in their names, with the necessary fee, to the Secretary of the Medical Faculty a fortnight before the examination. The fee is £5 5*s*. The examination is conducted by specially qualified examiners appointed by the University. Candidates may enter for the whole examination at one period or they may enter for Part I. at one period and for Part II. at another and subsequent period.

The Royal Colleges of Surgeons and Physicians of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have been qualified for at least one year. Those qualified before 1890 do not require to produce evidence of attendance on any special courses. All other candidates must have attended, after qualifying, six months' practical instruction in a recognised public health laboratory or laboratories and must have studied for six months the duties of outdoor sanitary work under the medical officer of health of a county or large urban district or a medical officer of health who is also a teacher of Sanitary Science in a Medical School or a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps District or command or must themselves have held an appointment as medical officer of health under conditions not requiring the possession of a sanitary diploma. There are two examinations, and candidates may enter for both at one period or for either separately. The First Examination includes (*a*) Laboratory Work (Chemistry and Bacteriology), (*b*) Physics, and (*c*) Meteorology; and the Second Examination embraces (*a*) Report on Premises visited, (*b*) Examination at Fever Hospital, (*c*) Examination at Public Abattoir, (*d*) Written and Oral Examination on Epidemiology and Endemiology, (*e*) Vital Statistics and Sanitary Law, and (*f*) Practical Sanitation. The fee is 1 guineas for both examinations, or 6 guineas for either of them. A fee of £3 3*s*. is payable by rejected candidates for either examination. The examination is held twice yearly in May and October. The published regulations provide detailed synopses of the subjects of examination. The Registrar for Edinburgh is Mr. James Robertson, solicitor, 54, George-square, and for Glasgow Mr. Alexander Duncan, LL.D., 242, St. Vincent-street.

IRELAND.

Royal University of Ireland.—This University grants a Diploma in Sanitary Science. It is conferred only on graduates in Medicine of the University. Candidates are not admitted to this examination until the lapse of twelve months from the time of obtaining the M B., B.Ch., B.A.O degrees; they must give notice in writing to the Secretaries of their intention to present themselves and must pay the fee, £2, at least one month previously to the examination. Candidates are required to produce a certificate of having, after obtaining the degrees of M.B., B.Ch., B.A.O., attended six months' practical instruction in a laboratory approved by the University, and also of having for six months practically studied the duties of outdoor sanitary work under the medical officer of health of a county or large urban district. Candidates at this examination must answer in the following subjects: (1) Physics, (2) Climatology, (3) Chemistry, (4) Microscopy, (5) Bacteriology, (6) Geology, (7) Sanitary Engineering, and (8) Hygiene, Sanitary Law, Hygiene, Pathology (including methods of post-mortem [illegible] II. : Hygiene [illegible] Health Acts, [illegible]

Royal College of Physicians and Royal College of Surgeons in Ireland.—Stated examinations for the Diploma in Public Health are held in the months of February, May, and November. A special examination for the diploma may, at the discretion of the Committee of Management (except during the months of August and September), be obtained on payment of £10 10*s.*, in addition to the ordinary fees mentioned below, and on giving notice at least one fortnight before the date of the proposed examination. Every candidate for the Diploma in Public Health must be a registered medical practitioner. (Candidates registered or entitled to be registered prior to January, 1890, are exempt from the rules as to study.) He must subsequently to qualification (1) receive six months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months practically study outdoor sanitary work under a medical officer of health and shall as an additional requirement attend a hospital for infectious diseases. Candidates are examined on four days, commencing on the first Monday of February, May, and November. Each candidate must return his name to the secretary of the Committee of Management under the Conjoint Scheme two weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. The fee for the examination is £10 10*s.* The examination for the diploma in State Medicine comprises the following subjects:—State Medicine and Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Law, and Bacteriology. For further particulars apply to the Secretary, Committee of Management; Office, Royal College of Physicians, Dublin.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without the special licence; but it is of eminent advantage to take the L.D.S., otherwise few dental appointments at general or special hospitals or dispensaries are available, and, what is still more important, the manual dexterity and knowledge of mechanics requisite for the successful practice of dentistry can only be gained by long and careful training at the dental operating chair and in the dental laboratory; and, this having been attained, it is but little trouble to pass the special examinations. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course; a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course; a separate course of Practical Dental Surgery; a course of not less than five lectures on the Surgery of the Mouth; Dental Mechanics, one course; a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns; Dental Metallurgy, one course; a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than two years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). The Dental Schools in London are the Dental Hospital of London, the National Dental Hospital and College, and Guy's Hospital Dental School Most of the large provincial towns have now dental hospitals. A convenient arrangement by which the M.R.C.S., L.R.C.P., and L.D.S. can be taken is as follows:—The Preliminary Examination in General Education having been passed the student should become apprenticed to a qualified dentist and register as a dental and medical student. (This instruction, however, may be taken prior to the date of registration as a dental student.) During his apprenticeship the student should receive instruction in Chemistry and Physics, Pharmacy and Elementary Biology, and pass in these subjects before entering the hospital (The foregoing constitute the First Examination.) Having entered the hospital the student should attend the dental and general courses contemporaneously, and pass at the end of the second winter the Second Examination—namely, Anatomy and Physiology. At the completion of his second year of study the Dental Examination should be passed. The student should then devote his time to general studies and pass the Third Examination. When time permits it is advisable to attend the general hospital only until after the First and Second Examinations have been passed. At this point a break may be made to admit of the completion of the dental curriculum and the passing of the examinations for the L.D.S. diploma. The best course, however, is entirely to finish the curriculum for the M.R.C.S. and L.R.C.P and then take the special Dental work. The regulations for the Dental Licence of the Royal Colleges of Ireland and Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow are very similar to those of the English College. The L.D.S. can also be obtained alone.

REGISTRATION OF DENTAL STUDENTS.

The registration of dental students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and subject to the same regulations as regards Preliminary Examinations. Students who commenced their professional education by apprenticeship to dentists entitled to be registered or by attendance upon professional lectures before July 22nd, 1878 [illegible] duce certificates of having been engaged during four years in professional studies and of having received three years' instruction in mechanical dentistry from a registered practitioner. The three years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no year of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration.

It is now necessary for anyone practising Dental Surgery in this country to be on the Register and no foreign qualifications are admitted.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after Jan. 1st, 1897. Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination. I. Preliminary Science Examination.—Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry. The examination consists of these subjects and is identical with Part I. of the First Examination of the Examining Board in England. II. The First Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during a period of not less than three years in acquiring a practical familiarity with the details of mechanical dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the superintendent of the mechanical department of a recognised dental hospital. In the case of qualified surgeons evidence of a period of not less than two, instead of three, years of such instruction will be sufficient. 2. Of registration as a dental student by the General Medical Council. 3 Of having attended at a recognised Dental Hospital and School (*a*) a course of lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy; (*c*) a course of Lectures on Dental Mechanics; and (*d*) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination after the completion of six months' attendance at a recognised Dental Hospital and School. The Examination consists of Mechanical Dentistry and Dental Metallurgy; the examination in Dental Metallurgy will be by written paper. III. The Second Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student. 2 Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology;

(*b*) a separate course of Dental Histology, including the preparation of microscopical sections; (*c*) a course of Dental Surgery; (*d*) a separate course of Practical Dental Surgery; (*e*) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school; in the latter case they may form part of the course of lectures on Surgery; (*f*) a course of Dental Materia Medica; and (*g*) a course of Dental Bacteriology; (*f*) and (*g*) are required of candidates who enter at a Dental Hospital on or after May 1st, 1902. 3. Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years. 4. Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy, (*b*) a course of lectures on Physiology, (*c*) a separate Practical Course of Physiology, (*d*) a course of lectures on Surgery, and (*e*) a course of lectures on Medicine. 5. Of having performed Dissections at a recognised medical school during not less than twelve months. 6. Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery during two winter sessions. 7. Of being twenty-one years of age. The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers. Candidates may present themselves for the Second Professional Examination after the completion of four years' professional study from the date of registration as a dental student and after the lapse of not less than six months from the date of passing the First Professional Examination. The Second Professional Examination consists of: Part I., General Anatomy and Physiology, General Surgery and Pathology; Part II., Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination in Part I. comprises General Anatomy and Physiology, General Pathology and Surgery, and in Part II. Dental Anatomy and Physiology, and Dental Pathology and Surgery. At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries, and may be required to prepare and fill cavities or to do any other operation in Dental Surgery (candidates must provide their own instruments); (*b*) on the Treatment of the various irregularities of Children's Teeth. There is also an Oral Examination. Candidates may take the two parts of the examination together or separately. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination of the Royal College of Surgeons of Edinburgh, of the Royal College of Surgeons in Ireland, or the Faculty of Physicians and Surgeons of Glasgow, or of any University in the United Kingdom. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and Universities above mentioned. The fee for the diploma is 20 guineas and is payable as follows:—Preliminary Science Examination, 3 guineas; First Professional Examination, 2 guineas; Second Professional examination, 5 guineas; the balance to be paid on the completion of the Examinations. The Preliminary Science Examination is held in January, March or April, July, and October in each year. The First and Second Professional Examinations are held in May and November in each year. Candidates must give twenty-one clear days' notice of their intention to present themselves for examination.

Royal College of Surgeons, Edinburgh.—For the Licence in Dental Surgery all candidates must pass a Preliminary Examination in General Knowledge and have their names inscribed in the Register of Dental Students of the General Medical Council. A copy of regulations, giving a list of Preliminary Examinations recognised for obtaining this Licence, as well as of the subjects of the Professional Examinations, may be obtained from Mr. James Robertson, Clerk to the Royal College of Surgeons, at 54, George-square, Edinburgh. Students who commenced their professional education by apprenticeship or attendance on lectures before July 22nd, 1878, are exempt from the Preliminary Examinations. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies and of three years' instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates who have commenced their studies *after* Oct. 1st, 1890, must have attended the following curriculum: Anatomy, one course of six months; Practical Anatomy, twelve months; Chemistry, one course of six months; Practical Chemistry, one course of three months; Physiology, one course of six months; Materia Medica, one course of three months; Surgery, one course of six months; Medicine, one course of six months; and attendance on the practice of a recognised general hospital, with Clinical Instruction, twelve months. (Candidates who commenced study in accordance with the regulations in force before July, 1895, shall not be required to attend more than six months' hospital work.) These courses must have been attended at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the diploma in Surgery. In addition to these courses candidates will be required to have attended in a recognised dental hospital, or with teachers recognised by the College, the following special courses of lectures and instruction: Dental Anatomy and Physiology (Human and Comparative) (not less than 24 lectures), Dental Surgery and Pathology (not less than 20 lectures), Dental Mechanics (not less than 12 lectures)—one course each; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Certificates of attendance on such of these courses of the new curriculum as may be respectively required will entitle candidates to appear either for the First Dental Examination or for the First and Second Examinations for the Triple Qualification, as they may select, and subject to the existing regulations for each qualification. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. First Professional Examination: The candidate must have attended the courses on Anatomy, Chemistry, and Physiology. The examination embraces Anatomy, Chemistry, and Physiology. The fee for those candidates who began study before Oct. 1st, 1896, is £4 4*s.* Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is twenty-one years of age, and must pay a fee of £6 6*s.* The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics with Dental Metallurgy. Unsuccessful candidates will be repaid £2 2*s.* in the First and £3 3*s.* in the Second Examinations. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £10 10*s.* payable for the dental diploma, of which £3 3*s.* will be returned in case of rejection. The fee payable by candidates who began study after Oct. 1st, 1896, shall be £15 15*s.*

Faculty of Physicians and Surgeons of Glasgow.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh. Special provision is made for candidates who intend to qualify both in Medicine and in Dentistry. Candidates can enter for the First Examination in two divisions, the first embracing Physics and Chemistry, and the Second Anatomy and Physiology. There is a practical examination in Mechanical Dentistry and also an examination in Practical Dentistry conducted in a dental hospital.

Royal College of Surgeons in Ireland.—All information concerning the licence in Dental Surgery may be obtained from the

Registrar of the College, who will receive the applications of candidates for permission to be examined. The bank receipt for fees, together with all certificates, &c., are to be lodged with him at least seven days prior to the day fixed for the commencement of the examination. The Primary Dental Examinations commence on the second Monday in the months of February, May, and November. The Final Dental Examinations commence on the Thursdays immediately following the Primary Dental Examinations. Candidates are required to pass three examinations—viz., Preliminary (in [illegible] Examination.—Fee £10 10*s.*; for re-examination, if rejected, £5 5*s.* Every candidate[1] is required, before admission to the Primary Dental Examination, to produce evidence—(1) of having passed a recognised preliminary examination [illegible] dental student [illegible] subsequently [illegible] attended at a [illegible] ses: Lectures [illegible] Anatomy, six months; Demonstrations and Dissections, two courses of six months each; Lectures on Chemistry, six months; Lectures on Physiology, including Dental Physiology, six months; Practical Histology; and Practical Chemistry, including Metallurgy, three months; (3) of having attended Clinical Instruction at a recognised general hospital for one year. The subjects of this examination are: (1) Physics;[2] (2) Chemistry, including Metallurgy; (3) Anatomy; (4) Physiology and Histology; and (5) Surgery. Final Examination.—Candidates holding L.R.C.S.I. or students who have passed Primary Dental or Third Professional Examination of the College, £10 10*s.*; re-examination, £5 5*s.* Fees for Final Examination of all other candidates, £26 5*s.*; re-examination, £10 10*s.* Extra fee for Special Examination, £5 5*s.* Candidates must produce evidence of having passed the Primary Dental Examination of this College, or the Third Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, and are required to produce certificates of having attended: (1) the following courses of lectures recognised by the College: Dental Surgery and Pathology (two courses), Dental Mechanics (two courses); (2) for two years the practice of a dental hospital recognised by the College or of the dental department of a general hospital so recognised; (3) of having been engaged during four years in professional studies; and (4) of having received three years' instruction in Mechanical Dentistry from a registered dentist. Candidates holding a diploma in Surgery shall be admissible to the Final Dental Examination on producing certificates of having attended: (1) one course of Lectures on Dental Surgery and Pathology; (2) one course of Lectures on Dental Mechanics; (3) for one year the practice of a dental hospital recognised by the College, or of the dental department of a general hospital so recognised, where such attendance has been subsequent to the date of diploma (this remission (3) has been made on the understanding that the surgeon devotes his whole time to dental work); and (4) of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist. The following are the subjects of examination: Dental Surgery, Theoretical (including Dental Pathology), Clinical, and Operative; Dental Mechanics, Theoretical, Clinical, and Practical (including the Metallurgy of the Workshop). Examinations for the Licence in Dentistry *sine curriculo:* The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the Dental Register published under the direction of the General Medical Council, and who are unable to furnish the certificates required by the foregoing regulations, on presentation of a special schedule of application.

TEACHING INSTITUTIONS.

England.

Royal Dental Hospital of London and School of Dental Surgery, Leicester-square.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 4 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the three years' mechanical training recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The eight house surgeoncies are held for one year each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the mechanical laboratory. Two scholarships of the value of £20—the Saunders and the Entrance. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses, at the end of the summer and winter sessions. A prize of the value of 5 guineas is given by Messrs. Ash and Sons for the best essay on some surgical subject connected with Dental Surgery. The conditions under which this prize is to be competed for are the same as those for the Saunders Scholarship, with this exception, that the papers are to be written in the hospital during the summer session. Consulting Physician: Sir Richard Douglas Powell, Bart. Consulting Surgeon: Mr. Christopher Heath. Consulting Dental Surgeons: Mr. T. Arnold Rogers, and Mr. Smith Turner. Dental Surgeons: Mr. Leonard Matheson; Mr. E. Lloyd Williams; Mr. J. F. Colyer; Mr. C. F. Rilot, and Mr. H. Lloyd Williams. Assistant Dental Surgeons: Mr. W. H. Dolamore; Mr. G. Hern; Mr. J. G. Turner; Mr. Russell Barrett; Mr. N. G. Bennett; Mr. D. P. Gabell; Mr. W. J. May; Mr. A. Hopewell-Smith; Mr. W. S. Nowell; and Dr. H. Austen, Anæsthetists: Dr. Dudley W. Buxton; Mr. Carter Braine; Mr. George Rowell; Dr. R. Turle Bakewell; Dr. R. J. Probyn-Williams; Mr. H. Hilliard. Demonstrators: Mr. G. P. Duprey and Mr. E. F. Ackery. Medical Tutor: Mr. Wharburton Brown. Dental Anatomy and Physiology (Human and Comparative): Mr. A. Hopewell Smith. Dental Surgery and Pathology: Mr. W. B. Paterson. Mechanical Dentistry: Mr. E. Lloyd Williams. Metallurgy in its Application to Dental Purposes: Dr. Forster Morley, assisted by Mr. H. Richards. Dental Bacteriology: Mr. Howard Mummery. Dental Materia Medica: Dr. H. A. Austen. During the sessions the surgeons of the day will give demonstrations at stated hours. The house surgeons attend daily while the hospital is open. Fee for two years' hospital practice required by the curriculum, including lectures, £50 in one payment, or 50 guineas in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £55 Both hospitals can be attended simultaneously. The fee for three years Mechanical Dentistry is 150 guineas. The Dean, Mr. Morton Smale, attends at the hospital every Wednesday morning from 10 to 12, or he can be seen at other times by appointment. Letters to be addressed—The Dean, 32, Leicester-square, "to be forwarded."

National Dental Hospital and College.—Winter Session, 1903-04, commences on Oct. 1st at the new building at the corner of Great Portland and Devonshire-streets, W.—Consulting Physician: Sir W. H. Broadbent. Consulting Surgeon: Mr. Christopher Heath. Consulting Dental Surgeon: Mr. S. J. Hutchinson. Visiting Physician: Dr. James Maughan. Visiting Surgeon: Mr. E W. Roughton. Dental Surgeons: Mr. F. H. Weiss, Mr. A. Smith, Mr. E. Beverley, Mr. T. G. Read, Mr. Rushton, and Mr. H. J. Relph. Assistant Dental Surgeons: Mr. W. Weiss, Mr. S. F. Rose, Mr. A. E. Relph, and Dr. J. Sim Wallace. Anæsthetists: Mr. H. P. Noble, Mr. C. J. Ogle, Mr. G. E. Norton, Dr. J. Maughan, Dr. J. Blumfeld, and Mr. W. R. Collum. Lecturers (winter), Dental

---

[1] Candidates educated in England or Scotland are admitted to the Primary Dental Examination on the production of the certificates that would be necessary for both Primary and Final Examinations in their own countries.

[2] Candidates who have passed in Chemistry and Physics at a First Professional Examination [illegible] the Conjoint Board with the Royal [illegible] with the Apothecaries' Hall, or an [illegible] by the College, are exempted from [illegible] at the Primary Dental Examination.

Anatomy and Physiology: Dr. J. W. Pare, Tuesdays and Thursdays, 5 P.M., in October, November, and December. Dental Metallurgy: Mr. Hugh Candy. Tuesdays, 5 P.M., in January, February, and March. Dental Mechanics: Mr. H. Rose, Wednesdays, 5.30 P.M., in January, February, and March. Dental Materia Medica: Mr. Charles W. Glassington, Tuesdays, 6 P.M., October, November, and December. Summer—Dental Surgery and Pathology, Mr. H. J. Relph, Tuesdays and Fridays, 4 P.M., in May, June, and July. Bacteriology of the Mouth: Mr. K. W. Goadby, Wednesdays at 4 P.M. during May, June, and July. Practical courses to comply with the R.C.S. curriculum are also held. The hospital is lighted throughout by electricity and warmed and ventilated by approved methods. Clinical Lectures and Demonstrations are given from time to time, and each student on entering passes through a preliminary course under a demonstrator. The stopping rooms have accommodation for 50 chairs. Dresserships in the extraction and stopping rooms are re-arranged every three months. Two Entrance Exhibitions, of the value of £40 and £20, are open for competition. Prizes in medals are open for competition at the end of each course of lectures. Certificates of honour are also open in each class. The Rymer Medal for General Proficiency, value £5, is awarded annually to the most meritorious student; and the Ash Prize, value £3 3*s*., for a Thesis on a subject in Dental Surgery. Total fee for the Special Lectures and Hospital Practice required, 40 guineas. Single Courses: Dental Anatomy and Physiology, Dental Surgery and Pathology, Dental Mechanics, Dental Metallurgy, Bacteriology of the Mouth, Dental Materia Medica, Demonstration of Dental Mechanics, £5 5*s*. each. Hospital Practice to registered practitioners by special permission of Committee, 12 months, £15 15*s*. The Committee also consider applications from medical men who may desire to attend the Anæsthetic Room for a course of instruction in Nitrous Oxide administration. Information respecting the Hospital Practice and the College may be obtained from the Dean, Mr. Sidney Spokes, who attends at the Hospital, Great Portland-street, on Tuesday mornings.

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. *The Extraction Rooms:* Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the dental house surgeon, the assistant dental house surgeon, and the dressers. Such cases as are suitable for conservative treatment are transferred to the conservation room, taking with them a dental chart to indicate the treatment required *The Conservation Room:* This room is open from 9 A.M. till 5 P.M. There are 55 Morrison chairs, each fitted with a saliva ejector, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon in the week to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Laboratory. Dental students have the opportunity of attending concurrently at this hospital the two courses of instruction required by the examining board for the L.D.S. Eng., viz., the special lectures and practice of the Dental Department and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Two Entrance Scholarships in Dental Mechanics of the value of £20 each are offered for competition annually, one in September and one in April, and prizes of the aggregate value of £35 are awarded for general proficiency and skill in Practical Dentistry. Dental students are eligible for admission to the Residential College and enjoy the other social privileges of students in the Medical School.

Staff. — Dental Surgeons: Mr. F. Newland-Pedley, Mr. W. A. Maggs, and Mr. J. H. Badcock. Assistant *Dental Surgeons:* Mr. R Wynne Rouw, Mr. H. L. Pillin, Mr M. F. Hopson, and Mr. J. B. Parfitt. Demonstrators of Practical Dentistry: Mr. J. L. Payne, Mr. E. B. Dowsett, Mr. P. S. Campkin, Mr. C. S. Morris, and Mr. F. J. Pearce. Anæsthetists: Dr. F. W. Cock, Dr. H. F. Lancaster, Mr. C. J. Ogle, Dr. W. S. Handley, Mr. R. P. Rowlands, and Mr. R. H. J. Swan. Lecturers.—Dental Surgery and Pathology: Mr. Newland-Pedley. Dental Anatomy and Physiology: Mr. Maggs. Operative Dental Surgery: Mr. Badcock. Dental Mechanics: Mr. Wynne Rouw. Practical Dental Mechanics: Mr. Pillin. Dental Materia Medica: Sir Cooper Perry. Dental Bacteriology: Dr. Eyre. Dental Microscopy: Dr. Spriggs and Mr. Forsyth. Metallurgy: Mr. J. Wade. Practical Dental Metallurgy: Mr. Hopson. Curators of Dental Museum: Mr. Payne and Mr. Dowsett. Dean: Dr. Fawcett.

London Hospital.—Mr. Dolamore and Mr. Farmer give practical instruction during the winter and summer sessions on Mondays, Tuesdays, Thursdays, and Fridays at 9 A.M. In selecting from candidates for the office of Dental Assistant priority will be given to those who have attended the greatest number of lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the dental department. A class for special instruction in filling teeth will be formed each term. Candidates for Dressership must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months, and to follow the practical course of demonstrations.

University of Birmingham.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board, so that the students may fully qualify themselves for the Dental diploma of the Royal Colleges. There is a special and well-equipped Dental Museum and Laboratory. An Entrance Exhibition, value £37 10*s*., is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery from some body legally entitled to confer such qualification. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. 4. *A*. In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the Courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees: (*a*) Chemistry and Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Comparative Anatomy, (*d*) Anatomy and Practical Anatomy, and (*e*) Physiology and Practical Physiology. *B*. That he has attended the following Courses: (*f*) One Course of Lectures on Medicine, (*g*) One Course of Lectures on Surgery, (*h*) Special Courses of Lectures on the Surgery and Medicine of the Mouth, and (*i*) Pathology and Bacteriology, and has passed the examinations for candidates for Dental Degrees held in each of these subjects. *C*. That he has attended Courses in: (*k*) Dental Histology and Patho-Histology, (*l*) Comparative Dental Anatomy, and (*m*) Dental Surgery and Prosthetic Dentistry. *D*. That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period not less than six months. 5. The Final Examination will deal with the subjects in Classes *C*. and *D*. 6. On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Board of Dental Studies. The degree will be awarded or withheld according to the report of these examiners.

University College, Bristol. — Dental students can enter for the full curriculum at Bristol. The Lectures are delivered at the college. Practical instruction is given at the *Royal Infirmary* by Mr. Ackland and at the *General Hospital* by Mr. Genge, both institutions being recognised by the Dental Board of the Royal College of Surgeons of England. Full information may be obtained of the Dean of the Medical

Faculty, Professor E. Markham Skerritt, University College, Bristol.

Owens College, Manchester.—Arrangements have been made for dental students to attend the hospital practice at the Manchester Royal Infirmary and the practice at the Victoria Dental Hospital. Lectures on special subjects will be given in the College as follows:—Winter session: Dental Mechanics, Mr. Tanner, Thursday, 4 P M. Dental Metallurgy, Mr. J. P. Headridge, Monday, at 4 P.M. Dental Bacteriology, Professor Delépine, Monday, Tuesday, and Thursday, at 3 P.M.; Wednesday and Friday, at 2 P.M. Summer session: Dental Anatomy and Physiology, Dr. Preston, Tuesday at 2 P.M., Friday at 2 P.M. Dental Surgery, Mr. Campion, Tuesday and Friday, 3 P M. Practical and Operative Dental Surgery, Mr. Whittaker, Wednesday: Lecture, 2 30 P.M.; Demonstration, 4 P M. Lectures in Dental Histology, Mr. D. Headridge, Monday, at 3 P.M. Dental Materia Medica, Professor Wild and Mr. Simms, Tuesday, at 4 P.M. Fee for each course £4 4*s*.; for the Class in Practical Metallurgy, £2 2*s* Dental practice for two years at the Manchester Royal Infirmary, £10 10*s*.; at the Victoria Dental Hospital at Manchester, £21, paid in advance, or £13 13*s*. for the first year and £8 8*s*. for the second year. At the Victoria Dental Hospital patients attend at 8.30 A.M. daily, and at 6 30 P.M. on Monday, Wednesday, and Friday. Consulting Surgeon: Mr. J. Hardie. Consulting Dental Surgeons: Mr. H. Campion and Mr. T. Tanner Dental Surgeons: Mr. G. G. Campion, Mr. H T. Dreschfeld, Mr. J. W. Dunkerley, Mr. W. Dykes, Mr. D. Headridge, Mr. W. A. Hooton, Mr. P. A. Linnell, Mr. F. W. Minshall, Mr. I. Renshaw, Mr. W. Simms, Mr. T. E. Sherratt, Mr. C. H. Smale, and Mr. G. O. Whittaker. Assistant Dental Surgeons: Mr. J. W. Gibbons, Mr. J. P. Headridge, Mr. J. H. Matthews, Mr. W. H. Norman, Dr. C. H Preston, and Mr. J. Stephenson. Demonstrator. Mr. W. H. Jones. Tutor: Dr. C. H. Preston. House Dental Surgeon: Mr. G. W. Barlow. Curator of Museum: Mr. D. Headridge. Administrators of Anæsthetics: Dr. A. Wilson, Mr. F. H. Westmacott, and Dr. W. B. Pritchard. Dean: Mr. William Simms.

University of Liverpool (Liverpool Dental Hospital and School of Dental Surgery).—The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated and the management of the curriculum is in the hands of a joint committee. At the Dental Hospital recent alterations have been made, and as it now stands this school offers advantages to students which are not excelled anywhere. The ground floor of the building contains the following: Extraction-room, with all needful appliances; anæsthetic room, specially reserved, with every convenience; and large waiting-room for patients. The first floor has a large board-room and a véry comfortable students' room set apart exclusively for the use of students. The whole top floor of the building has been thrown into one fine, airy, and well-ventilated operating room. This room will accommodate upwards of 30 operating chairs, which are of the "Morrison pattern," and each of which has a special electric light (canting pendant) suspended before it. In the basement a very convenient workroom has been fitted up containing the necessary requirements, and there are commodious lavatories for students. A new Laboratory for practical mechanical work has also been constructed so as to meet the requirements of the curriculum. It is adequately furnished with all the modern appliances of a dental workshop. A skilled dental mechanic has been engaged and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lectures at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes seven honorary Dental Surgeons, a Demonstrator, two House Surgeons, and a Curator. Fees for two years' hospital practice, £21. Apprenticeship.—A limited number of apprentices are admitted annually. Fees for three years, £105. Further information may be had from the Warden, Mr. W. H. Gilmour. The various medical and dental lectures are given at the University of Liverpool. The Anatomical Department has been removed to a new building, comprising a spacious dissecting room, and a museum which contains an excellent collection of skulls illustrative of human and comparative dental anatomy. Fees: The composition fee for all lectures is £50 in one payment on entrance, or in two equal instalments (one-half on entrance and the remainder within twelve months). The fee for general hospital practice is £10 10*s*.

Devon and Exeter Dental Hospital, Castle street, Exeter.—Established 1880.—The hospital is open daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 A M. Students attending the practice of the hospital must consider themselves strictly under the control of the medical officers, and must not undertake any operation without the consent of the dental surgeon for the day. Hon. treasurer, Mr. J. M. Ackland; hon. secretary, Mr. Henry Yeo.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in a spacious and well-equipped building at 31, Chambers-street, and offers special advantages to dental students. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools The hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses are taken in the hospital. The Dental Hospital practice, extending over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectures of the hospital are recognised by, and qualify for, all the Licensing Boards. For the special classes, both theoretical and practical, required by dental students the directors have secured the services of an efficient staff of dental officers and lecturers. There will also be a course of demonstrations in Mechanical Dentistry. Students will receive instruction in Practical Dental Mechanics under the mechanician. The fee for clinics in gold filling is included in the Dental Hospital fee of £15 15*s*. The minimum cost of classes for the whole course of dental instruction amounts to £90 7*s*. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow is recommended. The minimum cost of the Professional Education, Triple Qualification, and Licence in Dental Surgery amounts to £169 7*s*. The mechanical department is large and airy and furnished with all modern tools and appliances The Museum, which was recently enriched by the gift of the valuable collection in dental anatomy of the late Mr. Andrew Wilson, is open to students for study. Further particulars can be obtained from the Dean, Mr. W. Guy.

Dental Hospital and School, Glasgow.—The winter session will begin in October and the lectures will be delivered as follows. In Dental Mechanics on Monday at 7.30 P.M., by Mr. Hugh McKay, and in Dental Metallurgy on Wednesday at 7.30 P.M., by Mr. W. D. Anderson. Fee for each of the above courses of lectures, £3 3*s*. The lectures and instruction at the Glasgow Dental Hospital and School are recognised by all the licensing bodies in the United Kingdom. The fees for two years' hospital practice are £15 15*s*. Intending students before commencing to attend the lectures or hospital practice must produce evidence of having passed the preliminary examination prescribed by the regulations of the General Medical Council for registration of dental students. The hospital is open daily from 5 to 7 P.M (Saturdays excepted). Students may only enrol during the months of April or October. Summer session begins in April.

Glasgow Royal Infirmary (Dental Department).—Mr. W. H. Gray, attends at the Royal Infirmary at 3 P.M. on Mondays, Wednesdays, and Saturdays, and gives a course of instruction in Dental Surgery on these days in summer. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry with Metallurgy, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the

Dental Clinic is free to students of the hospital; to dental students, one year, £5 5*s.*; perpetual £10 10*s.* The winter session opens Thursday, Oct. 15th.

COOKE'S SCHOOL OF ANATOMY, PHYSIOLOGY, AND OPERATIVE SURGERY, London.—The school is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half-a-dozen students in the course of the year; these have special advantages both as regards Anatomy and Physiology. Charges are but slightly in excess of current charges, and particulars are forwarded on application. By the decision of various examining bodies gentlemen rejected at their Anatomical and Physiological Examinations can get signed up for the supplementary work they are required to put in before re-examination. The operations of surgery are performed on the dead body and the courses are recognised for army promotion. The school possesses a good collection of physiological and chemical apparatus, and candidates for the higher examinations receive special instruction in the more difficult subjects.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—Chemistry and Physics: Mr. W. Palmer Wynne. Botany: Professor Reynolds Green. Pharmaceutics: Professor Greenish (Dean of the school). The session commences on Thursday, Oct. 1st. Medical students, or pupils intending to enter the medical profession, are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges. Application for admission to the school, or for further information, may be made to the Registrar, 17, Bloomsbury-square, London, W.C.

THE LONDON COLLEGE OF CHEMISTRY, PHARMACY, AND BOTANY, 323, Clapham-road, London, S.W. — Principal, Henry Wootton. This College, which is established for the purpose of providing thorough and practical instruction in all branches of science, especially for students preparing for Pharmaceutical, Medical, and University Examinations, includes large and completely fitted chemical, pharmaceutical, and physical laboratories, lecture-hall, museum, and class-rooms. Each student has a separate commodious bench, fitted with gas, water, and sink, with large locker for apparatus. There is a botanic garden attached to the school. Special classes are held daily in preparation for the Medical and Pharmaceutical Preliminary Examination of the College of Preceptors, fee 4 guineas per term of three months, commencing Sept. 22nd.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY, LTD., Trinity-square, Borough, S.E.—Principal, G. S. V. Wills. Special instruction given to medical and dental students in chemistry, physics, and pharmacy. Fees and time by arrangement. Ladies are prepared for the Dispenser's Examination of the Apothecaries' Hall. For prospectus, fees, &c., apply to J. E. Walden, Secretary.

ROYAL COLLEGE OF SCIENCE, London (with which is incorporated the ROYAL SCHOOL OF MINES).—Mechanics and Mathematics: Professor J. Perry, F.R.S., and Mr. A. R. Willis. Biology: Professor G. B. Howes (Zoology), and Professor J. B. Farmer (Botany). Chemistry: Professor W. A. Tilden and Dr. M. O. Forster. Physics: Professor H. L. Callendar, Mr. W. Watson, and Mr. A. Fowler. Geology: Professor J. W. Judd and Dr. Cullis. Metallurgy: Professor W. Gowland. Mining: Professor C. Le Neve Foster. The College re-opens on Wednesday, Oct. 7th, 1903. Communications should be addressed to the Registrar, Royal College of Science, South Kensington, S.W.

ELECTRICAL STANDARDIZING, TESTING, AND TRAINING INSTITUTION, Faraday House, 8 and 10, Charing-cross-road, W.C.—Principal, Hugh Erat Harrison. Instructor in Mathematics: Alexander Russell, M.A. Glasgow and Cambridge. Instructor in Chemistry: Mr. J. Thomas. Instructor in Mechanical Engineering: Mr. Walter H. Bell. This institution, in addition to its ordinary course of training in electrical engineering, which occupies two or three years, also arranges for special instruction in all branches of electricity either by private tuition or by a specially arranged course at the College or at the works of the companies with which it is associated. There are Entrance Scholarships of the value of 80 and 50 guineas, and Exhibitions of 40 guineas. Particulars may be obtained on application to the Secretary, Mr. Howard Foulds, Faraday House, Charing-cross-road, W.C. Session begins Sept. 14th.

MEDICAL TEACHERS.

MR. R. C. B. KERIN, B.A. London, first in First Class Honours in Classics, assisted by a staff of B.A. and B.Sc. Honour Graduates, prepares candidates in class and by private tuition for Medical Preliminaries, London Matriculation, Preliminary Scientific Inter. Science, Hospital Scholarships, First Conjoint, First M.B. Lond., Oxon., and Camb., &c. Biological, Chemical, and Physical Laboratories. For last eight years 230 London University Successes and four Hospital Science Scholarships, &c.—Carlyon College, 55 and 56, Chancery-lane, W.C.

The UNIVERSITY EXAMINATION POSTAL INSTITUTION prepares candidates either through the post or orally for all Medical Examinations, especially the M.D. (Lon[illegible]H. (Cambridge or London), and the F.R.C.[illegible] There are five tutors holding the M.D [illegible]stal preparation, besides other tutors for [illegible]ution has a well-equipped laboratory for [illegible]ing Bacteriology. Oral classes are held during September to revise book work and practical work. The Manager is Mr. E. S. Weymouth, M.A., 27, Southampton-street, Strand, London, W.C.

M.D., B.S. LOND. prepares for all the Professional Exams. Small classes are held for the Final College of Surgeons and Physicians, the Hall, the M.D.'s of Brussels and Durham (15 years' standing). Tuition by correspondence.—Address, M.D., 23, Wimpole-street, Cavendish-square, W.

Special preparations, in class, privately, and by correspondence, for the Triple Qualification, Edinburgh. Also for Fellowship Examinations of the Royal College of Surgeons, Edinburgh, and M.D. Brussels. Resident pupils received.—Address, CLASS ROOMS, 7, Chambers-street, Edinburgh.

Coaching for Examination (University of Brussels). Also Correspondence Course for Provincial Practitioners, with practical and *vivâ voce* work in London before going to Brussels.—Address, CANTAB., 2, Harewood-place, Hanover-square, W.

Mr. D. W. PATTERSON, M.B., B.S. Durh. (First Honours), Luke Armstrong and Charlton Scholar, Gibson Prizeman, Coaches in all the professional subjects of the M.D. Durh. exam. During the last two years 30 out of 36 candidates coached by Dr. Patterson have been successful.—Dr. Patterson, Cardigan-terrace, Newcastle-on-Tyne.

Coaching by experienced Honours Graduates (Medicine, Surgery, Science) for M.D. (Lond. and Cambridge), M.D. Durham (15 years standing), M.D. Brux., Primary Fellowship, D.P.H., the Services, 1st, 2nd, and Final Conjoint. Tuition in class, privately or by post, in Medicine, Surgery, Anatomy, Physiology, Materia Medica, Chemistry, Biology, &c. Laboratory. Many years' continuous success. Special Correspondence Courses for M.D. Lond., M.D. Durh., F.R.C.S., D.P.H., &c.—E. GOOCH, B.Sc., 115, Gower street, W.C.

A Surgeon having experience of Hospital Practice and Surgical Tuition prepares gentlemen for the examinations of the Conjoint Board, the Fellowship, and the Universities. Microscopical and Wet Specimens.—Apply, F.R.C.S., 6, Mansfield-street, Cavendish-square, W.

Classes for the Navy Medical Service are held at 46, Great Ormond-street, W.C.

INSTRUCTORS IN ELOCUTION, &c.

Mr. WILLIAM VAN PRAAGH, the public introducer of the Pure Oral System of teaching Deaf Mutes, has made the subject of Lip-reading and the cure of all Defects of Speech, both acquired and congenital, his special study. Papers on the various subjects can be had at 11, Fitzroy-square, W.

Mrs. EMIL BEHNKE gives instruction in Voice Training and treats Stammering and other Defects of Speech at 18, Earl's-court-square, S.W.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS) (LONDON COMPANIES), Calthorpe-street, Gray's-inn-road, W.C.—Officer Commanding: Lieutenant-Colonel J. E. Squire, V.D. The Royal Army Medical Corps (Volunteers) bears the same relation to the Volunteer Army as the Royal Army Medical Corps bears to the regular Army. The course of training has the great advantage of affording, in addition to a knowledge of ordinary military duties, special ambulance instruction useful in all ranks of life. All who have gone through the ranks of this corps are capable of rendering valuable aid in any accident, and in cases of emergency may be the means of saving lives which would otherwise be lost. In addition to the drills of an ordinary infantry corps, the special training includes stretcher and waggon and cacolet drill; the use of improvised seats and stretchers; the use and application of bandages, splints, &c.; lectures by the officers on first aid to the injured, and on the elements of anatomy, physiology, hygiene, and nursing, which are so arranged as not to interfere with the lectures, &c., carried on at the various hospitals in London. The Corps goes into camp for a week in the summer each year for field training. There is also a Shooting Club in the corps, in which instruction in, and facilities for, the practice of rifle shooting are given. There is a Transport Section in connexion with the corps, the members of which go through a course of instruction in riding and driving and transport work with the regular troops. There are also sections of Cyclists and Signallers. A Gymnastic Class meets once a week at headquarters, under an instructor who teaches boxing and fencing. Lectures are delivered during the winter session. The headquarters contain a fine drill-hall, mess-rooms, canteen, &c., where dinners, suppers, dances, and smoking concerts can be held at any time. The Adjutant will give any information respecting the above on application to the headquarters, Calthorpe-street, Gray's-inn-road, W.C.

Annotations.

"Ne quid nimis."

NEW ROMAN OCULIST'S SEALS.

SOME considerable time has elapsed since we have recorded and described any newly discovered Roman oculist seal, but the delay has not been caused by any sudden diminution of the average rate at which fresh specimens have been recovered but in the difficulty of correctly deciphering the inscriptions upon the three or four signets that have recently been brought to light. This rendered it advisable to postpone an account of them until opportunity permitted a revision of the final renderings given of the texts by their translators. A seal has been found at Rugles in the French department of the Eure and is now in the possession of M. Courtot, intendant-général at Chalons, which is of special interest by reason of its presenting us with the name of a new collyrium. It has a barbarous Latin graffito in the body of the seal. This cursive writing is a most unusual practice upon these antiquities. Unusual also is the omission of the seal-owner's name, which in this case has not been engraved, for the owner's name has only been similarly absent in some seven or eight of the more than 200 oculist seals hitherto known. The absence of the user's or the owner's names in this small percentage of cases renders it possible that the engravers kept a stock of seals enumerating the most fashionable oculist remedies of the time; when, if a practitioner travelling through a city desired to acquire one immediately, time might not be available for the engraving of his name. On the other hand, it is perhaps the case that in some seals we have bearing names the name is not that of the owner but that of some previous oculist who was famed for the invention or application of the collyria which they enumerate, precisely as some medicines now bear the name, not of the person prescribing them, but of the physician or the druggist who first introduced them. The inscription of the seal discovered at Rugles reads as follows:—

1. Collyrium fós post impet(um).
2. Diapsoricum delacrimator(ium).
3. Dicentetum post impetum.
4. Dielæum len(e) ad siccam lipp(itudinem).

1. Collyrium light (to apply) after the acute period (of ophthalmia). 2. Collyrium diapsoricum to excite (or stanch) tears. 3. Collyrium picentetum (to apply) after the acute period of ophthalmia. 4. Collyrium of sweet oil, to counteract *dry ophthalmia*. In the first line the o in "fos" has an accent showing it to be a long syllable, and in corroboration of this it has been found spelt "foos" upon an oculist seal preserved at Nimes, but upon another seal it is spelt "phos." There exists, by the way, a little vase which must once have served as a receptacle for this ointment, for in the Paris Bibliothèque Nationale is a small lead vase which is engraved with the word "phos."[1] Here we evidently attain to the derivation of the words *"fós" and "phos"; it is φῶς, the Greek for light*, and is *one* of a number of similar titles which the Roman oculists delighted in ascribing to their remedies; for, interesting as their seals are, we fear that the practitioners were *often* of the quack fraternity. Similar names for collyria are *theodotium* (*"gift of the gods"*) amimetum (inimitable), or basilium (royal). However, though its title reveals nothing to us, fortunately for science classical authors can be cited who will almost certainly divulge to us the ingredients forming the collyria utilised by the unknown owner of the Rugles seal. For the word "φῶς" appears in the "De Re Medica" of Alexander of Tralles who tells us that the remedy bearing this title, known to him, was employed to restore feeble vision to normal. The formula he gives is as follows: "Oxide of zinc, drachmæ 8; sal ammoniac, dr. 4; saffron, dr. 2; white pepper, dr. 3; nard and orpiment singulorum, dr. I. et S., valde bonum." He tells us as to this *medley*, "Pulvis cui nomen est a lumine φῶς, ad habitudinem oculorum efficax." It appears, however, to have encountered a competitor, for Nicolas Myrepsus, in his "De Collyriis," gives a collyrium called "light" in Latin, the ingredients of which are quite different from those of Alexander's "phos." Galen and Ætius, copying the former with slight modifications, describe another which they call "phosphorus" which also is not in any way identical with Alexander's "φῶς" Where upon a previously published seal the word "foos" occurs it was, we were told, to be applied "ad lippitudinem"—that is, to the cure of incipient ophthalmia and therefore in both cases it claimed to be a remedy for the same malady, though "post impetum" refers rather to the period when the ophthalmic attack becomes less acute, and when, the inflammatory pain diminishing, the disease threatens to develop into a chronic form. The seal inscribed "phos" discovered at Poictiers and the little vase inscription do not either of them suggest any malady for which the preparation was applicable. *If* the finest Syrian nard is indicated by one of the ingredients of the recipe of Alexander of Tralles for "fos" it might account for the pecuniary value and hence for the apparently high estimation of this collyrium, for oleum nardinum, or spikenard, was a most costly unguent believed to be obtained from a plant root, *Nardostachys jatamansi*,[2] very similar to valerian. Pliny tells us that the Syrian nard, perhaps *Valeriana sambucifolia*, was the most highly valued. Coming to the third line of the inscription, dicentetum had for its chief constituents verdigris and misy. Properly the word *merely means* "of double efficacy." Like the first collyrium it is for use in the later developments of ophthalmia. The last line gives us the new collyrium—dielæum. Its base evidently was an oil, ἔλαιον, and from the frequent use of that of the olive by both Greek and Roman medical men no doubt was a product of that tree. Pliny tells us both the leaves and flowers of the olive were used as remedies by oculists, as also were the ashes of the wild olive and its oil. Pliny also calls the oil of olives "omphacium," and Galen places omphacium among the ingredients of several collyria. In the numerous instances where the classic treatises upon diseases of the eye direct the use of oil in the making of collyria, we may justly assume that it was an oil of olives or of the olive tree. There is another oil mentioned by Pliny, the oil of œnanthe, as providing an excellent remedy for defective vision, so it is possible that dielæum may have been this. Frequently these mild medicaments were diluted with woman's milk or the white of egg; this appears to have been the rule in grave cases and is a course strongly recommended by Celsus, who speaking of the diluting says: "Quo gravior vero quæque inflammatio est" and "Eo magis leniri medicamento debet adiecto vel albo ovi, vel muliebri lacte." On the other hand, collyria of mordant character, perhaps as a *warning to care in their application*, are specialised on the seals as "acre," though but few specimens are yet known bearing these titles; Galen repeatedly refers to such, as does Ætius in his "Tetrabiblos." The dry ophthalmia called by Scribonius-Largus "xerophthalmia" is much written of in classic oculist manuscripts; a summary of all these edited up to 1865 may be found in Sichel's important work, "Nouveau Recueil des Pierres Sigillaires d'Oculistes Romains."[3] The badly scrawled graffito on this

---

[1] Catalogue des Bronzes Antiques de la Bibliothèque Nationale, par MM. Babelon et Blanchet, p. 673, No. 2231.

[2] See Lagarde's Mittheilungen, Band ii., Gottingen, 1887, p. 26.

[3] This work originally appeared in four essays in vol. lvi. of the Annales d Oculistique de Bruxelles. He translates Ætius as saying, "Dans cette maladie l'œil est atteint de sécheresse, de demangeaison et de légère doleur, sans dureté des paupières."

seal does not present any sensible reading. We have treated somewhat fully of this seal because of its intrinsic value and because its inscription particularly serves to illustrate the interesting character both from a scientific and antiquarian point of view of these relics of the medicine of the past. Consideration of the second line of the inscription must be reserved for another day.

THE INTERNATIONAL ASSOCIATION OF THE MEDICAL PRESS.

ON the afternoon of Tuesday, Sept. 1st, in one of the committee rooms of the Senate, the members of the International Committee elected at the Second Congress of the Medical Press, which was held at Madrid in April last, met to transact the business of the association. Dr. Cortezo, president of the association, was in the chair, and was assisted by Dr. José Monmeneu, both from Spain. France was represented by Dr. Blondel, general secretary of the association, and Dr. Granjux; Norway by Dr. Aaser; Denmark by Dr. Carvë; Belgium by *Dr. Déjace; Portugal by Dr. Silva Carvalho;* and Great Britain by Dr. Dawson Williams, vice-president of the association, and Mr. Adolphe Smith. The committee sat for more than three hours. Among other things it was decided that substitutes should be admitted to the committee only if their appointment had been approved by their respective nationalities. Nor could voting by proxy at the committee meetings be allowed, for it was important that these committee meetings should be as fully attended as possible so that they might lose nothing of their representative weight and character. It was then decided to ask all national associations to send a copy of their rules to the central bureau. A long conversation followed as to measures that should be taken so as to bring about the formation of associations of the medical press in the countries where, as yet, no such organisations exist. The question of the future general assemblies of the International Association of the Medical Press, how they were to be organised and financed, was also fully debated. Altogether, as this is the first meeting of the international committee held since the definite formation of the association, as much business and practical work was done as could be expected.

THE Eleventh International Congress of Hygiene and Demography, a brief forecast of which from the pen of our Special Sanitary Commissioner will be found on p. 729, was opened on Tuesday, Sept. 2nd, under the Presidency of Prince Albert of Belgium. It bids fair to be a practical success. The earnest workers are going to be present and their labours will not be hampered by enormous crowds of mere sightseers, as is apt to happen when such congresses are held in very interesting or out-of-the-way capitals.

THE supplement to the Thirty-first Annual Report of the Local Government Board, 1901-02, which contains the report of the medical officer for the period stated, has just been published. As usual, the medical officer's report is supplemented by some admirable reports by the medical inspectors upon all the more important questions of preventive medicine and sanitary administration.

THE report of the medical officer of health of Cape Colony for the week ending August 8th shows that during the week in question one case of plague was discovered—namely, that of a male native who was found dead at Queenstown. Plague-infected rats were found during the week at Port Elizabeth, East London, and Queenstown.

Professor Nocard, the eminent French veterinarian, has died at the early age of 54 years.

THE MILITARY MEDICAL SERVICES.

THE present time affords a fitting opportunity for those who are turning their thoughts to the adoption of a military medical career for considering what are the inducements held out to young medical men to enter the army. What do they gain and what do they lose in comparison with a civilian life as a medical man if they enter one of the military medical services?

THE ROYAL ARMY MEDICAL CORPS.

The Army Medical Service having some years ago been organised as a corps with an autonomy of its own and the question of the military titles, rank, and status of its officers having been settled in accordance with their wishes, and with those of the profession generally, there still remained for solution the problem of how the needful supply of highly qualified medical candidates could be obtained, and how the State could have the assurance that their scientific knowledge and professional efficiency would be always maintained.

Reviewing in 1902[1] the reorganisation and reforms which had been introduced by the Royal Warrant and regulations of that year, *we were able to show that a number* of very radical and salutary changes had been effected, improvements which we considered would work for the benefit of the State as well as for the Army Medical Service. We could see no reason why, if the reforms were faithfully carried out, a really good stamp of man should not in future be attracted to the army, and attracted in sufficient quantity. The lack of candidates which made the system of competitive examinations for commissions a farce ought, we hoped, no longer to obtain. It is satisfactory to learn, therefore, that our opinion has been justified by the results of the last examination, when the entry for the Royal Army Medical Corps was a thoroughly good one in respect of numbers and quality. There were in all 72 candidates for 30 vacancies and among the successful competitors were many highly qualified men and several who had distinguished themselves at their respective medical schools.

We are glad that this should have been so, for it is not for the good of the State or of the medical profession that there should be anything like a boycott of an important public service, while the consequences to the army were becoming very serious. The report of the Royal Commission upon the Preparations for the Boer war shows how terribly undermanned the Army Medical Service was at the commencement of hostilities. The last examination of candidates for commissions in the Royal Army Medical Corps proves that in order to make a public service attractive to the class of men whom it is desired to enrol the Government must reasonably advance with the age. It will not do to lag behind and to rely for ever upon ancient traditions, however glorious. It shows also that the State must deal equitably and fairly with its servants, as the private employer must, or no one will desire to serve it. The State has shown in its present attitude towards the Royal Army Medical Corps that it desires to act fairly; that it is willing to redress certain obvious grievances and to take advice for the future, lest the plight in which the Boer war found our army as regards medical equipment should again occur. Terrible circumstances forced upon public attention a condition of things that had been openly stated in THE LANCET to exist, and it is probable that these circumstances led to the measures of reform that have been granted. This does not alter the fact that the improvements exist and that while as far as they go they are very real there is reason to hope that they will go further, especially in regard to sanitary organisation. The report of the Royal Commission upon the preparations for the Boer war, to which we have just alluded, and an abstract of which was published in THE LANCET of August 29th, p. 624, is a document of such momentous importance that we believe the views therein expressed will largely influence the future of the British army, and this report dwells on the need for improved sanitary organisation in connexion with the Army Medical Service, suggesting also that larger opportunities should be given to members of the service for keeping abreast of the times in their professional knowledge. In fact, the improved scheme under which the officers of the Royal Army Medical Corps now serve is not final. The part to be played by the Advisory Board has still to be tested in time of war. The constitution of this body has not escaped criticism, but it is new to its work, and the medical profession will regard its efforts favourably as long as they are he outcome of the right spirit—as long as all action that is aken is toward the production of an officer of the army who s primarily a medical man by profession.

---

[1] THE LANCET, August 30th, 1902, p. 645.

We think, then, that for young and well-trained medical men, and especially for those of an enterprising and scientific type of mind, the Army Medical Service holds out many nducements and occasionally some unique opportunities, and n much the terms that we employed last year we recapitulate briefly how some of the more important changes in the organisation of the Army Medical Service will affect the officers. First, then, the pay has been increased as well as the numerical strength of the medical service. The medical officer will on entering the service be in possession of a fairly liberal rate of pay. He will while serving have special opportunities for the study of his profession and can accelerate his promotion and qualify for an appointment with extra pay as an expert in subjects for which he has any special knowledge, taste, or aptitude. Success in the Army Medical Service is no longer by a dead-level seniority; the door is thrown open to professional merit and attainments in a way that has never before been, but which we have always advocated should be, the case. With the increased facilities for professional and scientific study and the establishment of a staff medical college and military hospital in London, the public medical services are designed to be brought into close relations with the medical profession in civil life, and medical officers should be able to avail themselves of the large and varied field of clinical material and hospital practice to be found in the metropolis. It will be seen, therefore, that the medical officer of the future will be master of his fate to an extent that he has never been in the past, while a distinct premium is set upon excellence in professional and scientific work. This is as it should be. The Army Medical Service must first and foremost be regarded as a scientific branch of the Army if it is to maintain a high and respected position. On the mere ground of self-interest the officers and men of the army are quick to find out those whom they can trust when sick or wounded. They are naturally only too glad to avail themselves of the aid and skill of those who show that they are keenly interested in their profession, and are ready to do all they can to support the position of such men, if only in order to retain the benefit of their services. It is, after all, a matter of common sense and experience that this should be so. Of course in this, as in every other walk in life, a man has to a large extent to make his own position by the exhibition of his personal qualities, but if in addition to being professionally capable he is in mind and manner a self-respecting gentleman it would be hard to find a more pleasant position in life than such a medical officer will occupy. An officer of this stamp has always made, and will so long as human nature remains what it is continue to make, many true friends in the army. And if he takes part in a campaign and serves on a battle-field he will experience what the ties of comradeship mean, will see surgery on a big scale, and otherwise will learn lessons in field hospit[illegible] in the transport of sick and wound[illegible] There are besides some othe[illegible] in the army offers that canno[illegible] A medical man in the army [illegible] the course of his service-life many lands and many different peoples, ar[illegible] experiences as he travels [illegible]ed opportunities for studyi[illegible] under a variety of conditions; and, if he is a lover of nature and has an open and intelligent mind or a taste for natural history, he cannot fail in the course of his service to meet with a variety of interesting objects and situations which rarely, if ever, fall in the way of the civil practitioner in this country. With such advantages and a fixed and, on the whole, fairly good income, and free from the carking care and anxiety attending monetary struggles in early professional life his lot is not an unhappy one. And we are glad to see that all this is being recognised at the medical schools.

THE INDIAN MEDICAL SERVICE.

Of the Indian Medical Service it is not possible to speak with the same hopefulness. An admirable service in the past it has at no time fallen from its estate to the extent that was the case with the Royal Army Medical Corps. But the Indian Medical Service has grievances, manifest grievances, which despite much effort remain unredressed, and which certainly will soon alter its status in the eyes of the medical profession if they have not done so already. Nothing could be further from our wishes than to suggest that no young medical men should join this honourable service—we think that to suggest this kind of boycott is an unwarrantable thing to do; but it is our duty to these same young medical men to warn them that the Indian Medical Service is in a troubled condition. They should think over the position well. From the many complaints that have reached us we feel that unless the spirit of discontent which is rebelling against the present state of affairs in the service is laid low by the granting of measures of relief the future of the service will be very different from its past. The Government of India owes perhaps more to this service than to any other department in the country. From the days long ago when an Indian surgeon obtained a grant of land for the old East India Company from the then reigning Mogul up to the present time its officers have laboured far and wide in our great dependency for the cause of the Crown. But their recognition has been scanty.

Taking first the pay and comparing it with that of the Royal Army Medical Corps the following are the respective rates of pay of the Indian Medical Service in its military aspect and of the Royal Army Medical Corps in India:—

Indian Medical Service.	Rs. per mensem.	*Royal Army Medical Corps.*	Rs. per mensem.
Lieutenant before passing the lower standard in Hindustani	350	Lieutenant	420
Lieutenant after passing the lower standard and in officiating charge of a regiment	400		
Lieutenant or Captain in substantive charge of a regiment and having passed the lower standard (under five years' service)	450	Captain	475
Captain from five to 12 years' service in substantive charge of a regiment	600	Captain over seven years' service	530
		Captain over 10 years' service	650
Major in substantive charge of a regiment	800	Major	789
		" after 15 years' service	826
Lieutenant-Colonel in substantive charge of a regiment	1000 or 1100	Lieutenant Colonel	1150
		" " selected	1250

From this comparative estimate it will be seen that the pay of the Royal Army Medical Corps is superior to that of the Indian Medical Service in almost every instance, whilst the former Corps offers to the senior medical officer in charge of a hospital charge allowance at the following rates: 300 beds or more, 240 rupees a month; 200 beds or more, 180 rupees a month; 100 beds or more, 120 rupees a month; and 50 beds or more, 60 rupees a month. There is also specialist pay at the rate of 60 rupees a month to officers below the rank of [illegible] colonel. Fourteen months ago it was stated that [illegible] of pay to that granted to the Ro[illegible] under the new Warrant would be [illegible] Service. The enhancement of pay is, however, still "under consideration." Secondly, when an officer of the Indian Medical Service is given an appointment bringing in increased emoluments, as when proceeding from "grade pay" to "officiating pay" he has to pay his own passage money to take it up. Thirdly, an officer can only draw the lowest rate of pay until he has passed the language examination, but owing to the frequent moves of junior officers on first landing in the country it is often impossible to pass this examination for some time. Fourthly, the pay on the civil side, which used to be an alluring factor of the Indian Medical Service, has become much less. Owing to the increasing number of trained and well-qualified native surgeons—surgeons trained, moreover, at the hospitals manned by the Indian Medical Service—there is less scope for practice, while a limitation of private fees by the Government of India is both unfair and objectionable. Lastly, as regards promotion a lieutenant-colonel at the age of 55 years is bound to retire on a pension of £500 a year, unless promoted, for 25 years' service, and on £700 a year for 30 years' service [illegible]mstances. But owing to the diminution of [illegible]eded the amalgamation of [illegible]tion of the two services in 1880 there is now practically no chance of a lieutenant-colonel of 25 years' service coming up for selection for an administrative post. He thus has to retire on £500 a year, whereas if he had had as formerly the chance of succeeding to an administrative post he would have earned a pension of £700 by the time he had passed through his term of office, plus the additional £250 a year for the holding of such post; he thus loses £450 a year now as compared with former years.

This is a brief summary of the grievances which at present await redress in the Indian Medical Service. A report issued by the Royal Naval and Medical Committee of the British Medical Association mentions them, and some additional ones, in full detail, and offers at the same time suggestions for remedy which are valuable in proportion to their complete simplicity. It is because the causes of complaint could be so easily removed that we refuse to believe that the Indian Government will not soon take steps to remove them. Proposals for improving the pay and general conditions of the service have, we are informed, been actually formulated by the Government of India, and it is stated that they will shortly be taken into consideration by the Secretary of State for India in Council. There should be no more delay. The Indian Medical Service has been always held in high repute and esteem by the medical profession at large and, influenced no doubt by this official intimation of early measures of reform, as well as by the belief that a service with so honourable a past will not be allowed to sink below its own high level, a large number of candidates presented themselves at the competitive examination just held in London. 41 candidates of whom 23 had University degrees, competed for 16 appointments and 29 of them were reported to have qualified for commissions. It rests now with the Secretary of State for India in Council to justify the hope and belief that have been raised and to maintain the efficiency and popularity of the Indian Medical Service. And the sooner action is taken the better.

We have placed fairly before our readers the merits of the two services, and although we have just enumerated the grievances experienced by the members of the Indian Medical Service we yet say that each service holds out a prospect to the right sort of medical man of an honourable, eventful, and useful career. The Army Medical Service has been much improved and there is no reason to doubt that further improvement will come. To the Indian Medical Service redress of obvious injustice is promised and we cannot think that the Government of India will be so short-sighted as to withhold it much longer.

OPENING OF THE MEDICAL SCHOOLS.

WINTER SESSION, 1903-04.

LONDON.

St. Bartholomew's Hospital.—The session will begin on Thursday, Oct. 1st.

Charing Cross Hospital.—The session will commence on Thursday, Oct. 1st, by the annual prize distribution to the students and an introductory address to be delivered in the anatomical theatre at 4 P.M. by Sir Charles Wyndham. The dinner of the past and present students will take place at the Hotel Cecil on the evening of the same day.

St. George's Hospital.—The session will open on Thursday, Oct. 1st, when the introductory address will be delivered by Dr. W. R. Dakin, F.R.C.P.

Guy's Hospital.—The session will begin on Thursday, Oct. 1st. A house dinner will take place on the same evening at 7.30 P.M., in the college dining-hall. Mr. P. H. Pye-Smith, M.D., F.R S., will preside and Mr. Robert Gordon, (president of the clubs' union council), will be the guest of the evening. Applications for tickets for the dinner should be made to Mr. A. W. Ormond, F.R.C.S., honorary secretary of the students' club, Guy's Hospital. The opening meeting of the Physical Society will be held on Saturday, Oct. 10th, in the physiological theatre, at 8.30 P.M., Sir Samuel Wilks, Bart., M.D., LL.D., F.R.S., in the chair. Dr. J. F. Goodhart, LL.D., will address the society.

King's College Hospital.—The session will open on Thursday, Oct. 1st, when the introductory lecture will be delivered at 4 P.M. by Sir John Alexander Cockburn, K.C.M.G., on Imperial Federation and its Physiological Parallels. The old students' dinner will be held on the same evening at 7 P.M., at the Hotel Cecil, Strand, W.C. Dr. Charles Henry Allfrey, F.R C.S., will preside. Application for dinner tickets, price £1 1s., should be made to Dr. J. F. W. Silk, 47, Devonshire-street, Portland-place, W.

London Hospital.—The session will open on Thursday, Oct. 1st. The annual dinner will be held in the college library the same evening, when Mr. Lewis Mackenzie, F.R.C.S. Eng., will be in the chair.

St. Mary's Hospital.—The session will commence on Thursday, Oct, 1st. The annual dinner of the past and present students will be held at the Whitehall Rooms, Hôtel Métropole, on Friday, Oct. 2nd, Dr. R. Farquharson, M.P., in the chair.

Middlesex Hospital.—The session will open on Thursday, Oct. 1st, at 3 P.M., when Mr. William Herne, M.R C S., L.D.S., will give an introductory address, after which the prizes gained during the previous year will be distributed by the Hon. Mr. Justice Wills. The annual dinner will take place the same evening at the Trocadéro at 7 P.M., Dr. W. Pasteur in the chair.

St. Thomas's Hospital.—The session will open on Oct. 1st and the annual dinner will take place on the following evening at the Hotel Cecil, when Dr. Cullingworth will occupy the chair.

University College.—The session will open on Monday, Oct. 5th.

Westminster Hospital.—The session begins on Thursday, Oct. 1st. The annual dinner will take place on Friday, Oct. 23rd, at the Trocadéro, Mr. Walter G. Spencer, M.S., F.R C.S., in the chair. Application for tickets should be made to the secretaries of the dinner: Mr. Arthur Evans, M.S., F.R.C.S., 53, Queen Anne-street, W.; Mr. J. H. Hebb, Westminster Hospital; and Mr. C. G. Browne, Westminster Hospital.

London (Royal Free Hospital) School of Medicine for Women.—The introductory address will be given by Miss Pace, M.D., at the Medical School on Thursday, Oct. 1st, at 4 P.M. The winter session will commence on Friday, Oct. 2nd.

Royal Dental Hospital.—The session will commence on Thursday, Oct. 1st.

National Dental Hospital.—The session will commence on Thursday, Oct. 1st.

PROVINCIAL.

University of Birmingham.—The session will open on Monday, Oct. 5th.

University College, Bristol.—The session will commence on Thursday, Oct. 1st.

University College, Cardiff.—The session will begin on Tuesday, Oct. 6th.

Yorkshire College, Leeds.—The session will open on Thursday, Oct 1st.

University of Durham.—The session will commence on Thursday, Oct. 1st.

University College, Liverpool.—The session will open on Thursday, Oct. 1st, when Sir Dyce Duckworth will give the inaugural address.

Owens College, Manchester.—The session will commence on Thursday, Oct. 1st.

University College, Sheffield.—The session will open on Thursday, Oct. 1st. The introductory address will be delivered on Oct. 15th by Sir Michael Foster, K.C.B., M.P., F.R.S.

SCOTLAND.

University of Aberdeen.—The session will open on Tuesday, Oct. 13th.

University of St. Andrews (United Colleges of St. Andrews and University College, Dundee).—The session will open on Tuesday, Oct. 13th.

University of Edinburgh.—The session will commence on Tuesday, Oct. 13th.

University of Glasgow.—The session will open on Thursday, Oct. 15th.

Anderson's College, Glasgow.—The session will begin on Thursday, Oct. 15th.

St. Mungo's College, Glasgow.—The session will begin on Thursday, Oct. 15th.

Queen Margaret College, Glasgow.—The session will begin on Thursday, Oct. 15th.

IRELAND.

Queen's College, Belfast.—The session will begin on Tuesday, Oct. 20th.

Queen's College, Cork.—The session will begin on Monday, Oct. 26th.

University of Dublin.—The session will begin on Thursday, Oct. 1st.

POST-GRADUATE STUDY IN THE METROPOLIS.

THE LONDON POST-GRADUATE ASSOCIATION.

THE Association which has hitherto been known as "The Association of Metropolitan Schools of Medicine" has changed its title and will in future be called "The London Post-Graduate Association." It now includes all the institutions recognised by the University of London as seats of medical education—namely :—*General Hospitals:* Charing Cross, Guy's, King's College, London, Middlesex, St. Bartholomew's, St. George's, St. Mary's, St. Thomas's, University College, and Westminster. *Special Hospitals:* Brompton Hospital for Diseases of the Chest, Hospital for Sick Children (Great Ormond-street), London School of Tropical Medicine, National Hospital for the Paralysed and Epileptic, and the Royal London Ophthalmic Hospital. It is hoped that this widening of the scope of the association will have the effect of making it even more attractive in the future than it has been in the past. Amongst other privileges its ticket (the charge for which is 7 guineas for three months or 10 guineas for six months) will admit to the post graduate courses carried on at the hospitals, both general and special, which share in the scheme. By means of clinical lectures and demonstrations, at which, so far as is possible, patients are shown, the wealth of clinical material, which would otherwise be almost unmanageable, is made readily accessible. In connexion with the special departments of several of the general hospitals similar lectures and demonstrations will also be given at regular hours. Qualified men have thus placed at their disposal the best of all the hospital work in London.

This is a scheme of post-graduate instruction which should prove attractive above all others to graduate members of the metropolitan schools who wish to widen their ideas by observation of the methods of teaching and practice adopted at institutions other than their particular hospital. The office of the association remains as before at the Examination Hall, Victoria Embankment, W.C., where all information may be obtained between the hours of 11.30 and 1, and 2 and 3, except on Saturdays.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.

This institution affords to medical men special facilities for acquiring technical skill and f[illegible] and scientific knowledge. The [illegible] consulting-rooms, a pathologica[illegible] Roentgen ray room, an ophthalmoscope room, a museum, a library, and reading and writing rooms, &c. Cliniques are given each working day of the week except Saturday, at 4 P.M., and a lecture on medicine, surgery, or their special branches is delivered daily except Saturdays at 5.15 P.M. Classes are also held in otology, laryngology, ophthalmology, radiography, anatomy, nervous diseases, microscopy, practical bacteriology, mental diseases, hygiene and public health, and operative surgery. Extra classes in any subject are formed to suit the convenience of practitioners unable to attend those already provided. A complimentary ticket available for three successive days will be issued to any practitioner upon presentation of his visiting card. A monthly journal, the *Polyclinic*, recording the work done in the college, is issued free to subscribers and members. The annual subscription for practitioners residing in Great Britain and Ireland is one guinea and for practitioners non-resident in the United Kingdom half a guinea. Full information can be obtained from the medical superintendent at the college, 22, Chenies-street, Gower-street, W.C. The autumn session commences on Monday, Sept. 7th.

CHARING CROSS HOSPITAL.

Classes for post-graduate study are held on each Thursday of the week throughout the year at Charing Cross Hospital. The fee for each course of ten lectures is £1 1*s*. The first of the two winter courses this year will commence on Oct. 8th and will be conducted by the following members of the medical and surgical staff: Dr. J. M. Bruce, Dr. T. W. Eden, Dr. H. M Murray, Dr. F. Willcocks, Dr. J. Galloway, Dr. W. Hunter, Dr. W. C. Bosanquet, and Mr. S. Boyd, Mr. H. F. Waterhouse, and Mr. C. Gibbs. Further information as to the dates and subjects can be obtained by communicating with the honorary secretary (Dr. Willcocks) at the hospital.

WEST LONDON POST-GRADUATE COLLEGE: WEST LONDON HOSPITAL.

The West London Hospital, Hammersmith-road, was the first general hospital in London to organise a systematic scheme for post-graduate teaching and to devote the clinical material in its wards and out-patient department solely to the instruction of qualified men. The college was started in 1895, and three years later was enlarged by the provision of accommodation for lectures, reading, and writing rooms, &c., while owing to the continued growth of the college a building especially constructed for post graduate purposes was opened last year. The physicians and surgeons of the hospital attend daily at 2.30 P.M. and post-graduate students may accompany the staff on their visits to the wards in the afternoon and may also accompany the junior staff in the mornings. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons of the hospital. Practical classes for instruction in special subjects are held each session. They are limited in number and each member has opportunities of gaining experience in the methods of examination and treatment. Operations are performed daily at 2 30 P.M. and the surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists of the hospital on the operating days and post-graduates administer anæsthetics under their superintendence.

The fee for the hospital practice, including all the ordinary demonstrations and lectures, is £1 1*s*. for one week; £2 2*s*. for one month; £4 4*s*. for three months; £6 6*s*. for six months; £9 9*s*. for one year; and £21 for a life ticket; all fees to be paid in advance. Arrangements can be made to pay the fee by instalments. Further information can be obtained on application to the Dean at the West London Hospital.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

In connexion with the Tottenham Hospital, N., facilities are afforded to qualified medical men for taking part in the work of an active general hospital and of attending demonstrations of various branches of Medicine, Surgery, and Gynæcology, with opportunities for other forms of clinical instruction, including Diseases of the Eye, Ear, Throat, Nose, Diseases of the Skin, the Administration of Anæsthetics, and Dentistry. Clinical Lectures are given from time to time by members of the staff. Cases are demonstrated both in the wards and in the various out-patient departments; operations are performed every afternoon of the week except Saturday. The fee for a three months' course of study, which may be begun at any time, in any single department, is £2 2*s*. A fee of £3 3*s*. admits to the whole practice of the hospital for a similar term and a perpetual ticket for the practice of the hospital may, for the present, be obtained on payment of a fee of £5 5*s*. Medical practitioners who have attended a three months' course in any department are eligible for appointment as Clinical Assistants in those departments. A certificate signed by the staff may be obtained at the end of three months' hospital attendance. Further information may be obtained from the Dean of the Post-Graduate College, Dr. A. J. Whiting, 142, Harley-street, W.

THE ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Brussels, August 29th.

THE steps and passages of the building of the Ministry of Agriculture have echoed to-day with unusual sounds and acclamations. Strange visitors have arrived from all parts of the world. They do not know their way about, they lose themselves in the long corridors, where they meet old acquaintances and there follow joyful salutations in all manner of languages. The native French or Flemish of the clerks and usual frequenters of the Ministry is now obliterated by the more animated and louder clamour of many foreign visitors. The one seeks the office where he can pay his subscription as a simple member of the Congress and hails from Poland; another has a large parchment with a big bright seal setting forth that he is a representative of America, and he has likewise a large heavy volume under his arm of which he is the proud author, and which he wants to present to the President of the Congress. Then there comes a clank of steel and a German officer in a bright blue uniform, with a pointed helmet on his head and a very big sword dangling by his side, presses forward. This Teutonic apparition, however, is soon effaced by a group of joyful Italians who in their melodious language give vent to the exuberance of their feelings. Never has this quiet and somewhat mournful building heard such a clatter and witnessed so many manifestations of joy which occur at every moment as the members of the Congress meet and recognise each other again. To-morrow and the day after the throng will be much greater. This is only the beginning, but it all looks hopeful, particularly as there seems to have been good organisation in the preparatory measures taken. Each member of the Congress as he arrives is presented with a little book which can easily be carried in the pocket. It contains first a small map of Brussels indicating all the tramway lines, and the members are informed that on presenting their cards of membership they will be allowed to travel gratuitously on all the tramways and local railways of the town. Then there comes the programme: Preliminary meeting of the Literary and Artistic Club on Tuesday, Sept. 1st; opening of the Congress on Wednesday morning by H.R.H. Prince Albert, and this is to take place at a quarter past nine in the morning, an extraordinary hour for such a ceremony. But the organisers were evidently anxious to get to business and the Sections are to meet in the afternoon at 2 o'clock and the exhibition has to be inaugurated in the interval between; so that some of the real work of the Congress will be accomplished on the first day, which is certainly not customary. In the evening His Majesty King Leopold will receive the members of the Congress at the palace. The opening ceremony takes place in the vast palace of the Academy and here the division of Demography will meet during the week. The seven sections of Hygiene are to hold their sittings at the Palace of the Nation—that is to say, at the Houses of Parliament—and will occupy the principal lobbies of both the Upper and the Lower House—namely, the Senate and the House of Representatives. As it is the object of these congresses to influence legislature in favour of sanitary reforms they could hardly meet in a more appropriate place. Thursday, Friday, and Saturday are devoted strictly to business. At nine in the morning and at two in the afternoon the sections meet. No relaxation is allowed till the evening, when there are a reception at the great historic town-hall on Thursday, a gala representation at the Alhambra Theatre on Friday, and an excursion to the park of Tervueren on Saturday. On Sunday, it is true, the sections do not meet, but there is not much prospect of rest, for the members have to start by a special train at 8 A.M. for Antwerp, where they are to be received by the municipal council and made to visit the maritime sanitary services and the museum and to eat a lunch offered by the townspeople, and all this in time to catch a special train at 5 o'clock back to Brussels. This is the only day when there is a chance of getting to bed at a reasonable hour. On Monday it will be hard work again in the sections all day with a big banquet in the evening. It is on the last day instead of on the first day that the members will be able to have a comparatively easy time, for the sections do not meet any more and the only gathering in the morning will be that of the Permanent Committee of the International Congresses of Hygiene and Demography which will have to decide the future of these congresses and where to meet next. At two in the after noon the closing ceremony will take place. But after the Congress there are to be three days of excursion. On Wednesday, Sept. 9th, there is a reception given by the municipality of Liège at the Sanatorium of Borgoument and another reception by the municipality of Spa. On the 10th there are excursions to the water-supplies and gathering grounds, &c., of Antwerp and Brussels, and on the next day to the reservoir of Boitsfort and the beautiful valley of Bocq. It is not a week but ten days of hard work and of sight-seeing that the organisers of the Congress have mapped out. Doubtless it will all be very pleasant and very instructive, but only a few of the members of the Congress will have the energy to go through it without rest or omission.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—Dr. C. R. Niven in his last letter (August 29th) says that he is exceedingly glad that the amount of difference separating my views from his "is getting less and less," thereby clearly implying that since the discussion on the above subject has been in progress (and presumably in consequence of it) my views have approximated to his. A difference now "getting less and less" clearly implies a difference formerly existent. Dr. Niven enumerates three points upon which "we have got so far as to agree": (1) that acquired trait are not transmissible; (2) that parental drinking does not cause increased desire for alcohol in the offspring; and (3 that every disease is a cause of evolution against itself That I am in harmony with Dr. Niven on these point (though I should have expressed the last named rathe differently) I am glad to believe, but why does Dr Niven use language which implies that these matter have been under discussion between us and that w have got to agree as the result of this? As regard evolution against disease I expressed my agreement wit Dr. G. Archdall Reid's position in the first letter wrote on the subject (July 18th), so, obviously, ther was no room for a process of gradual accord on thi point. And as regards the *other* two of the above name points I never even alluded to them (they being outside th immediate scope of the discussion) until Dr. Niven fastene these opinions upon me, implying by his arguments m belief in the first named (July 25th) and specificall asserting my belief in the second (August 15th I pointed out to Dr. Niven (August 1st and August 22nd how groundless these assumptions were, and I anticipated therefore, that he would have made an acknowledgment his error in attributing these opinions to me. Instead of thi however, by using language in his last letter (August 29th which would seem to indicate a gradual change of opinion my part on these subjects, he has ignored my positive assu ance that I had nowhere implied my belief in these opinio which he put into my mouth. I am sure that Dr. Niv would not deliberately misrepresent me, so I must ask hi now to quote categorically the passages in my letters th led him to assume that I believed (1) that acquired traits a transmitted—that is, of course, that specialised modificatio of the soma are transmitted—and (2) that parental drinki leads to *increased desire for alcohol* in the offspring. Yo readers can then judge for themselves what grounds D Niven had for his assumptions.

I regret to say that in Dr. Niven's last letter (August 29 there is *still* another misrepresentation. I stated mo precisely in my last letter (August 22nd) that in my opini the influence of a poison on the germ plasm was a *gener* one and *not* a *special* one, giving my reasons for this vie which Dr. Niven quotes. Yet in spite of this perfectly cle statement Dr. Niven says that I claim that the influence is "special" one. The difference between the two terms is great importance as the one connotes an entirely differe *modus operandi* from the other. My views, then, which D Niven represents as gradually approximating to his on t above points, are precisely what they were when the di cussion was first started. The point of difference betwee us remains what it was when Dr. Reid opened the campaig for I have not observed proof given or sufficient argumen advanced to disprove my belief that offspring are capab of being permanently modified through the agency of poiso circulating in the blood of the parent. But the poi of difference between myself and Dr. Niven seems a ve narrow one. Dr. Niven admits thus much but he does n see why the germ should vary in the direction of bei injured rather than in the opposite direction when expose to poisons circulating in the blood (August 29th). It woul seem, therefore, that whilst I think the variation *would* an unfavourable one, Dr. Niven thinks that there is an equ likelihood of its being a favourable one.

The case of alcohol is merely a special instance of eneral question, but to this point I hope to recur on a uture occasion.—I am, Sirs, yours faithfully,

Rainhill, August 30th, 1903. J. WIGLESWORTH.

To the Editors of THE LANCET.

SIRS,—Dr. G. Archdall Reid's letter in THE LANCET of ugust 22nd, p. 558, brought to my lips the deprecation of ncient Pistol:—

> "[illegible]
> [illegible]
> [illegible]
> [illegible] sweet chuck!"

nd for the moment I fancied myself a witness at the Old ailey in the hands of a barrister whose case was *hopeless*. am glad to find that he now recognises that he has *over*tepped the limits of ordinary courtesy and I trust that he ill in time recognise that nothing is lost in persuasiveness, nd something is gained in dignity, by pretending that his pponents are not immeasurably beneath him in intellect. le may remember with advantage that, by the ordinary ules of the game, the disputant who loses his temper is djudged to have the worst of the argument.

He inquires why I ask him for information. The answer ready: Because he is the only person who could tell ne what I wanted to know—viz., why he addressed is opponents so haughtily. Dr. Reid *gives me the informa*ion. It was the only way, he says, to shake a condence that seemed to him without justification. But 1) I expressed no confidence; and (2) if I did he has not haken it. And (3), is the way of storming and hectoring and [illegible] shake the confidence of those [illegible] not try reasoning? He tells [illegible] disease, &c., affecting parents [illegible] rate." If he will refer me to [illegible] I shall be obliged *to him*. I [illegible] He asks me what the *counter*cting circumstances are which prevent a giraffe having a ead as high as the cross of St. Paul's. There are many. One is that the weight of the neck would *crush* the nimal. He asks me to frame a definition of a "variaion" which does not involve the supposition that *it had* ts origin in a variation of the germ plasm. Certainly. By a variation I mean a difference between parent and ffspring not due to post-natal action of the *environ*nent on the offspring. And, as the whole *contro*ersy is on the question whether this difference has ts root in the original constitution of the *germ* plasm or whether it may not be due to the action on the germ plasm [illegible] assume that the *former is* [illegible] *principii*. Dr. Reid commits [illegible] THE LANCET of August 29th, [illegible] ays, "are transmissible to [illegible] cendants, whereas *modifica*ions are not." To prevent misrepresentation I beg Dr. Reid o notice that I do not now *traverse* this statement. Whether it is true or not true is beside the immediate question; but to assume that it *is true in a controversy* as o whether it is true or not is *petitio principii*. As to gravitation and the calf muscles *there* was no "idea underlying my argument," because I used no argument. I pointed out that the argument used by Dr. C. R. Niven to discredit the transmission of an acquired increase of the calf muscles was the same as that used by Newton's *opponents* to discredit the theory of gravitation. And it is the same.

Dr. Reid is kind enough to say that if I will *produce the* leg of one kitten which is exactly like the leg of another he will grant my argument. I am obliged *to him*, but I used no argument. Nothing is so abhorrent to me as argument, unless it be a misstatement of fact. *Here, again,* as throughout the whole controversy, Dr. Reid fails to discriminate between argument and assertion. Dr. Niven stated a universal negative, "No two members *of* the same litter correspond in any one character or trait." Dr. Reid knows enough of logic to know that a single affirmative instance destroys the universal negative and unless he contends that the possession of four legs is not a character or that no two kittens have the same number of legs, he must admit that Dr. Niven's universal negative is destroyed. He protests that I take some very disconcerting liberties. Well, facts which traverse one's favourite preconceptions are, doubtless, disconcerting [illegible] hem takes a liberty. I off [illegible] but I am going to take [illegible]

"Asexual reproduction results," says Dr. Reid, "in exact *copies* of the parent." He made the same statement at Swansea and he now repeats it in spite of the instances that I there gave him to the contrary. Is it possible that Dr. Reid, who comments upon our ignorance with even brutal frankness, does not know that the study of bud variation is a large and important branch of botany? It is among the commonplaces of gardening that a peach-tree may produce one branch of nectarines; that the same variety of chrysanthemums may produce five or six other varieties by bud variation; that—but your botanical readers can adduce instances literally by dozens and scores. Dr. Reid may say in his courteous and convincing manner that these facts "are not worth the paper they are written on," and "not worth the time spent in examination," but he must pardon me for insisting that these expressions do not annihilate the *facts*, and if the *facts* exist his statement is incorrect.

It "is a patent fact that every race which commands a sufficient supply of alcohol is temperate strictly in proportion to its past experience of the poison." If this means that every race is temperate strictly in proportion to the length of time during which its members have had free access to alcohol then I must ask for evidence. Dr. Reid says it is a patent fact, but patent has two meanings: it may mean open, evident, manifest; or it may mean restricted, monopolised. No doubt Dr. Reid uses it in the latter sense and I ask him to forego his monopoly and to reveal his facts.

"The most temperate people on earth—the South Europeans and the West Africans—have had unlimited supplies of alcohol for thousands of years." These are comprehensive statements. Doubtless Dr. Reid has grounds for them, but in view of the misstatements that he has made about matters that I do know—e.g., my own published words—I may be pardoned for mistrusting his evidence on matters beyond my ken. Let us see. The South Europeans include the natives of Spain, Portugal, Bearn, Gascony, Languedoc, Provence, Italy, Sicily, the Danubian Principalities, Turkey, Greece, and the Levant. The West Africans include the Moors, the Senegambians, the Mandingoes, the Sokotese, the Fellatah, the Congolese, the Benguellas, the Damaras, the Namaquas, and the Bushmen. All these "peoples, nations, and languages" are the most temperate on earth, and all have had unlimited supplies of alcohol for thousands of years. Of the history of the Mandingoes, Namaquas, &c., for thousands of years I know nothing, and if I were to adopt Dr. Reid's methods of controversy I should say, haughtily, that "I am inclined to believe that no one else knows more;" but as he has made a definite and positive statement I prefer to assume that he has grounds for it. Those grounds I ask him to reveal. I am sure that it will interest your readers to know them. But this is not all. These savage tribes have not only had unlimited supplies of alcohol for thousands of years, but all of them are among the most temperate people on earth. When I was at school, I was taught to look upon the Bushmen with disrespect, and even with some measure of contempt, and, I think, Sirs, that the schoolmasters who left us in ignorance of the Bushmen's superlative virtue of temperance deserve to taste of the quality of that birch which they applied so freely to our posteriors.

"None of your correspondents now appear to doubt that human evolution really has resulted from disease and alcohol." If Dr. Reid means, as he appears to mean, disease and alcohol alone, I not only doubt it, but think it preposterous. These factors have had their share, of course, but they have been but two factors among many. Warfare, religion, sexual preferences, famine and want in various degrees, commerce, language, laws, and many other influences have all contributed, and the share of disease and alcohol, though important, is by no means paramount. On the contrary, they are far less important than the others taken together. But I hasten to say that I do not want to swagger as the discoverer of these others. Any follower of Darwin, who thinks about the matter at all, does not need to grope about to discover them. They jump up and hit him in the face.

The letters of Dr. H. Laing Gordon and and Dr. A. Mearns Fraser exhibit the delightful solidarity of their nation. We know beforehand what the opinion of two Scots will be about the performance of a third but we do not often find this opinion expressed in terms quite so flamboyant as these gentlemen use. By the way, Dr. Gordon appears to think that Berkeley is an authority upon logic, and when Dr.

Gordon deprecates *our* dogmatism—well, well, one thinks of Satan reproving sin.

The last paragraph in Dr. Niven's letter seems unnecessarily prolix. The idea which takes him six lines to express could have been put into five syllables—It hurts to be scalped.

I am, Sirs, yours faithfully,

Catford, August 29th, 1903. CHAS. MERCIER.

Obituary.

HENRY GRAY CROLY, F.R.C.S., M.R.C.P. IREL.

THE death of Mr. Henry Gray Croly of 7, Merrion-square, Dublin, took place on August 28th at the residence of his brother, Silveracre, Rathfarnham. For more than a quarter of a century senior surgeon to the Royal City of Dublin Hospital, he was one of the best known and most eminent members of his profession in Ireland. As a Fellow and member of council or examiner at the Royal College of Surgeons in Ireland, his name has been prominent for many years. A sound surgical opinion and a skilful operator, he was the author of many valuable papers dealing with practical surgery. In April, 1902, he read a communication before the Surgical Section of the Royal Academy of Medicine in Ireland on Successful Ligation of the External Iliac Artery for Ilio-femoral Aneurysm and other Tumours. Mr. Croly's father was a distinguished Fellow of the Royal College of Surgeons in Ireland, his brother is at present in practice at Rathfarnham, one of his sons is surgeon to Mercers' Hospital, and another is a captain in the Royal Army Medical Corps.

Mr. Croly was in bad health for some time and his death, which was caused by an apoplectic seizure, was not unexpected.

Medical News.

THE END OF THE SMALL-POX EPIDEMIC IN BIRMINGHAM.—The last two cases of small-pox having been discharged from the isolation hospital on August 28th, Birmingham may now be considered to be clear of that disease. The epidemic commenced in the early part of last year when a tramp from Liverpool was taken ill in a common lodging-house. He was removed to the General Hospital where the true character of his disease was at once recognised. The man was sent to the fever hospital, the lodging-house was disinfected, two men who had been in company with the patient prior to his removal were kept under observation, and all the occupants of the lodging-house were vaccinated at once. These active measures were successful so far as this source of infection was concerned but a man who came in contact with the patient at the general hospital fell a victim to the disease. After this there were no fresh cases for a month when another tramp was found on March 26th to be suffering from the disease. A further case occurred on April 5th in the person of a man who had been in contact with a small-pox patient in Portsmouth. After this cases began to turn up in differents parts of the town, the source of infection not being traceable. At last it was discovered that six persons living in one house in a district where a number of cases of small-pox had appeared were being treated for chicken-pox, though in reality suffering from the more serious ailment. All these persons were removed to the hospital and the house disinfected. An attempt was also made to revaccinate all persons who had come in contact with any of these cases, an attempt which was in part unsuccessful on account of the objection of some of those who ought to have submitted to the operation. However, this outbreak was finally stifled and in September last the city was free from small-pox and so remained for some three months. Then it was reintroduced by another tramp, this time from Yorkshire. He was found to be suffering from the disease in the casual ward of the workhouse and there infected another inmate. Such was the commencement of the last outbreak, which may be said to have dated from Dec. 6th, since which date there have been 206 cases of the disease with only 10 deaths. Now again the city is free from small-pox.

PRESBYTERIAN MISSION HOSPITAL, MIRAJ.—A mission hospital of the Presbyterian Church in the United States of America was established at Miraj in the South Mahratta Country, British India, in 1892. The medi officers are Dr. W. J. Wanless and Dr. J. Rutter Williams The report for 1902 shows that 254 in-patients (including cases of plague) were admitted during the year and t there were 27 deaths ; 27 patients remained under treatm on Dec. 31st, 1902. The total number of cases treated out-patients was 19,834. The appended tables give deta of a great many surgical operations performed chiefly on t *eye and on the genito-urinary organs. In connexion* with t hospital there is a leper asylum in which 49 lepers were treat during the year and there were seven deaths.

THE British Rainfall Organisation, founded 1860 by the late G. J. Symons, will henceforth be carried under the sole charge of Dr. H. R. Mill, as Mr. Sowe Wallis has been compelled by ill-health to retire after m than 30 years connexion with the association.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institut and others possessing information suitable for this column, invited to forward to THE LANCET *Office, directed to the Editor, not later than 9 o'clock on the Thursday morning of t week, such information for gratuitous publication.*

ADAMS, J. E., L.R.C.P., M.R.C.S., has been appointed House Surg to St. Thomas's Hospital.

ADENEY, G. C., L.R.C.P., M.R.C.S., has been appointed Clin Assistant in the Special Department for Diseases of the Thro St. Thomas's Hospital.

CARPMAEL, N., L.R.C.P., M.R.C.S., has been appointed House Surg to St. Thomas's Hospital.

COATES, J., L.R.C.P., M.R C.S., has been re-appointed Clinical Ass ant in the Special Department for Diseases of the Throat at Thomas's Hospital.

GRAINGER-BISSET, A., M.B., Ch B. Gla [illegible] Resi Assistant to the Victoria Infirmar [illegible]

GUTHRIE, T., B.A., B.C. Cantab., L.R.C.P., M.R.C.S., [illegible] oin House Surgeon to Out-patients at St. Thomas's Hospital.

HARNETT, W. L., B.A. Cantab., L.R.C.P., M.R.C.S., has been appoin House Surgeon to Out-patients at St. Thomas's Hospital.

HARWOOD-YARRED, W. H., B.Sc. Lond., L.R.C.P., M.R.C.S., has b appointed Junior Obstetric House Physician to St. Thom Hospital.

HILDESHEIM, O., B.A., M.B., B.Ch. Oxon., has been re-appointed Ho Physician to St. Thomas's Hospital.

HUDSON, A. C., M.A., M.B., B.C. Cantab., has been appointed Se Ophthalmic House Surgeon to St. Thomas's Hospital.

LATHAM, C. H., L.R C.P., M.R.C.S., has been appointed Clini Assistant in the Special Department for Diseases of the Skin St. Thomas's Hospital.

LEACH, R. E. H., M.A., M.B., B.C. Oxon., L.R C.P., M.R.C.S., has b appointed House Physician to Out-patients at St. Thom Hospital.

PANTON, P. N., B.A. Cantab., L.R.C.P., M.R.C.S., has been appoin House Physician to St. [illegible]

PINCHES, H. I., B.A., M.B., [illegible] .R C.S., has b appointed House Surgeo [illegible] omas's Hospit

RICKETT, G. R., M.A., B.C. Cantab., has been appointed *House* Ph sician to Out-patients at St. Thomas's Hospital.

ROSS, E. A., M.B., B.C. Cantab., has been re-appointed Clinical Assist in the Special Department for Diseases of the Ear at St. Thoma Hospital.

SEARS, C. N., L R.C.P., M.R.C.S., has been appointed Clinical As ant in the Special Department for Diseases of the Skin at Thomas's Hospital.

SERGEANT, J. N., L.R.C.P., M.R.C.S., has been appointed House Ph sician to St. Thomas's Hospital.

SEXTON, H. W., L.R.C.P., M.R.C.S., has been re-appointed House Ph sician to St. Thomas's Hospital.

SPURRIER, H., B.A. Cantab., L.R.C.P., M.R.C.S., has been appoint Senior Obstetric House Physician to St. Thomas's Hospital.

UPCOTT, H., L.R.C.P., M.R.C.S., has been appointed House Surgeon St. Thomas's Hospital.

WHEEN, C., B.A. Oxon., L.R.C.P., M.R.C.S., has been *appointed* Ho Surgeon to St. Thomas's Hospital.

WIGRAM, L. E , M.A., M.B., B.C. Cantab., has been appointed Ho Surgeon to Out-patients at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should b made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with board and attendance.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINAR DISEASES, John Bright-street, Birmingham.—Clinical Assistant for three months. Honorarium at rate of 52 guineas per annum.

BIRMINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Medical Officer. Also Assistant Resident Surgical Officer. Salary £100 per annum each, with apartments, rations, &c.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—House Surgeon. Salary £160, with rooms, coals, gas, washing, and attendance.

[illegible] Resident Medical Officer, as [illegible] ths and House Surgeon for [illegible] of £80 and £100 per annum [illegible] washing.

[illegible] ham-road, S.W.—Physician.

[illegible] **HOSPITAL AND DISPENSARY.** [illegible] geon. Salary £120 per year, with board, apartments, and laundry.

DEVON AND CORNWALL SANATORIUM FOR CONSUMPTIVES, Didworthy, South Brent.—Resident Medical Superintendent.

DOWN DISTRICT LUNATIC ASYLUM, Downpatrick.—Junior Male Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, board, washing, &c.

[illegible] Salary [illegible]

[illegible] —Junior [illegible] r, rising [illegible]

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer. Salary £120 a year, with rooms, gas, and attendance.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Third Assistant Medical Officer, single. Salary £140, with board, apartments, attendance, and washing.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary £80 per a [illegible]

LOND [illegible] stant [illegible] s per a [illegible]

MET [illegible] cian, [illegible] louse [illegible] 240 a [illegible] ficer, [illegible]

PRES [illegible] £60 p [illegible]

SAMA [illegible] nical Assistants.

SHEFFIELD ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried. Salary at rate of £70 per annum, with residence, board, and washing.

STATE CRIMINAL LUNATIC ASYLUM, Broadmoor, Crowthorne, Berks.—Junior Assistant Medical Officer, unmarried. Salary £200, rising [illegible]

STR [illegible] per a [illegible]

WES [illegible]

Births, Marriages, and Deaths.

BIRTHS.

RAW.—On August 28th, at 66, Rodney-street, Liverpool, to Dr. and Mrs. Nathan Raw, a son.

WAINEWRIGHT.—On August 25th, at The Cottage, Cliffe Avenue, Cromer, the wife of Robert S. Wainewright, M.D. Lond., of a son.

MARRIAGE.

MCKECHNIE—CULLEN.—On August 24th, at St. Mary's Church, Bedford, by Rev. Vitruvius Wyatt, M.A., William Ernest McKechnie, M.B., Ch.B. Edinburgh, Indian Medical Service, to Marion Alice Cullen, only daughter of the late James Cullen, M.D., of Motihari, Chumparun, India.

DEATH.

BLAIR.—At "Eversleigh," [illegible] his 34th year, Andrew [illegible] the late Andrew Blair [illegible] terrace, Edinburgh. [illegible] intimation.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

COLONIAL APPOINTMENTS ON THE WEST COAST OF AFRICA.

To the Editors of THE LANCET.

SIRS,—I have read with interest "Colonial's" reply to "C. L.'s" query. Having had some experience as a Colonial surgeon on the Gold Coast, I cannot endorse all [illegible] His "three facts" are enti[illegible] many boats arrive in Engl[illegible] occurring on board; to be [illegible] six times from West Afr[illegible] voyage, and that a stewardess of the ship. Secondly, "the number of deaths within two years of leaving the coast, if published," would deter nobody, except an arrant coward, of going to the coast. I have attended in England scores of men who have been in West Africa and so far have not had one death. "Colonial's" idea of living in West Africa is as ridiculous as the rest of his statements. I lived as "Assistant Colonial Surgeon" in three stations on the Gold Coast easily and very comfortably on £200 per annum. "Colonial" must have been a dupe of the natives to spend £300 to £350 per annum on living. I am surmising he has gone through the experience, otherwise he would not be so ready to give advice. I do not deny that the climate is bad; I admit it is one of the most unhealthy parts of the world, and I also admit that the salary offered by the Colonial Government is wholly inadequate. Further, the actual conditions of service are not what they appear to be in England. Before I had been on the Gold Coast four months I was sent off to an out-station to fill a multiplicity of offices. I was the surgeon, the commissioner, the coroner, the registrar of marriages, I had to represent the Public Works Department, the Civil Police and Customs, and all this at one and the same time without one extra farthing of pay, though I had to make good any deficit. The latter part I learnt to my cost, as more than one month's [illegible] one year after it had been paid by me. Again, with reference to leave. I understood when I left England that after 12 months' service on the Gold Coast I should receive six months' leave of absence, but I had not been in Accra 24 hours before my mind was cruelly relieved of this [illegible] 18 months.

I am quite cognisant of the fact that "C. L." has not asked for this information, but I am sure it will be well worth his while to make inquiries about the conditions of service as well as of the climate. I might add that the last time I came home my "leave papers" showed that I was entitled to leave from June 8th to Dec. 23rd, 18—. In November I decided that I would not return and in order to give the Colonial Office due notice that they might fill my vacancy and thus not keep men over their time in West Africa I wrote that on the expiry of my leave I should not return to the Gold Coast, and asked that my *resignation* be accepted from the date on which my leave expired. The reply was that my pay would forthwith cease, which it did, but through many and various applications to the Colonial Office I got the authorities to see that I was now really spending a holiday which they had contracted to supply me with, and I received my pay up to the date on which I should have left England again—viz., Dec 1st. I thus lost 23 days' pay through trying to make matters easier for my medical brethren on the Gold Coast and through trying to give the Colonial Office time to fill up my vacancy. It is obvious that the correct course is to say nothing to any man, but on the day on which one's leave expires *simply* leave, and leave both Colonial Office and one's *confrères* [illegible] I still went on applying for this 23 days [illegible] little possibility of getting it. [illegible] apparently in urgent need of [illegible] e course for the authorities at [illegible] treatment of medical officers a year or two ago and to see if the present lack of applicants for medical appointments is not in some little way due to the arbitrary manner in which medical men have been treated in the past. The medical man on the Gold Coast, four years ago, had to be ready to turn his hand to *anything* and everything and this without one farthing extra pay, and from what I hear from men now there the same conditions exist.

I am, Sirs, yours faithfully,

M.B.

August 31st, 1903.

◆

M.D., D.Sc.—1. We do not know where any exhaustive list can be obtained, but the library of the Royal College of Surgeons of England and the library of the Royal Medical and Chirurgical Society probably receive all the best periodicals. Has M.D., D.Sc. consulted the *list of Messrs.* William Dawson and Sons, Bream's-buildings, E.C.? 2. Any foreign library would procure medical journals for our correspondent, but we do not know of any library where foreign medical journals can be obtained on loan. Our correspondent's question is not quite clear. 3. Not exactly.

M.R.C.S. and L.R.C.P.—We do not view the situation—which is by no means a new one—favourably, but we doubt if the General Medical Council would consider the medical man in question to be committing infamous conduct in a professional respect. The General Medical Council has, of course, authority only over the qualified medical man.

Colliery Accident.—Having read the extract we are of opinion that the jury returned a proper verdict, though the alternative one suggested by our correspondent could be supported by sound argument.

Gamma 1st.—We think that the General Medical Council would do well to remove from the official roll of the profession a practitioner registered as a moneylender.

M.B.—We have not the information in question, but possibly the *questions* could be answered by the Registrar-General at Somerset House, Strand, W.C.

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students we are necessarily compelled to defer the publication of communications on other important subjects.

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students' Number of THE LANCET *relative to the various medical examining bodies, hospitals, and medical schools of the United Kingdom is based. We regret that in some cases, however, owing to proofs having been either not returned at all or too late, certain inaccuracies may be found.*

TO ADVERTISERS.

Owing to the pressure on our advertisement columns this week some announcements have unavoidably been held over.

Communications, Letters, &c., have been received from—

A—Anderson's College Medical School, Glasgow, Secretary of; Messrs. Arnold and Sons, Lond.; Messrs. Armbrecht, Nelson, and Co., Lond.; Messrs. Allen and Hanburys, Lond.; Mr. F. Algar, Lond.

B.—Mr. W. Bryce, Edinburgh; Mr. C. R. H. Ball, Hunstanton; Messrs. Baiss Bros. and Stevenson, Lond.; Bayer Co., Lond.; Messrs. Bayliss, Thomas, and Co., Coventry; Mr. D. T. Bostel, Lond.

C.—Mr. J. E. Cornish, Manchester; Cortland Wagon Co., Lond.; Dr. A. C. Coles, Bournemouth; Messrs. W. and R. Chambers, Edinburgh; Lieutenant-Colonel A. E. J. Croly, Edinburgh; Mr. J. A. Crichton, Annan.

D.—Messrs. Down Bros., Lond.; Dr. R. J. Dick, Sevenoaks; Mr. S. C. Davies, Plymouth; Mr. E. Darke, Lond.; Messrs. Dale, Reynolds, and Co., Lond.

E.—Mr. H. S. Eland, Exeter; Mr. H. S. Elworthy, Lond.

F.—Messrs. Fuerst Bros., Lond.; Messrs. Ferris and Co., Bristol; Messrs. Fairchild Bros. and Foster, Lond.

G.—Messrs. Graham and Shepherd, Sunderland; G. J. W.

H.—Mr. J. Heywood, Manchester; B. Whitworth Hird, Ltd., Norwich; H. H. W.; Messrs. J. Haddon, Lond.

I.—Messrs. Isenthal and Co., Lond.

J.—Jeyes Sanitary Compounds Co., Lond.; J. P. A.

K.—Mr. W. H. Kesteven, Lond.; Mr. Vernon Knowles, Reading; Mr. R. Lawford Knapp, Leeds; Messrs. R. A. Knight and Co., Lond.; Dr. N. Kaim, Port Said.

L.—Mr. W. E. Langton, Lond.; Leicester Infirmary, Secretary of; Rev. W. H. Lambelle, Middlesbrough; L. B.; Lieutenant F. W. Lambelle, R.A.M.C., Hong-Kong; Dr. Lidwill, Ballarat.

M.—Dr. Charles Mercier, Lond.; Mr. B. G. A. Moynihan, Leeds; Professor Dr. Rodolfo Marotto, Naples; Mr. G. A. Morton, Edinburgh; Manchester Medical Agency, Secretary of; Messrs. F. Mundy, Gilbert, and Co., Birmingham.

N.—Nurses' Co-operative Outfitting Association, Stockport, Secretary of; Mr. J. C. Needes, Lond.

P.—Mr. R. S. Pearson, Lond.; Dr. T. Wilson Parry, Lond.; Mr. C. A. Parker, Lond.

R.—Dr. N. Raw, Liverpool; Dr. G. Archdall Reid, Southsea.

S.—Mr. A. Swanborough, Leeds; St. Mungo's College, Glasgow, Secretary of; Dr. A. Sandner, Bendigo, Australia; Messrs. Smith, Elder, and Co., Lond.; Salford Royal Hospital, Secretary of; Mr. J. Shields Stewart, Milnathorn; Dr. Louis E. Stevenson, Temple Sowerby.

T.—Dr. Leslie Thorne Thorne, St. Margaret's Bay.

V.—V. T. L.

W.—Mr. J. H. Wickvit, Lond.; Mr. E. S. Weymouth, Lond.; Messrs. Wright, Layman, and Umney, Lond.; W. H. D. W.; Mr. S. Wand, Leicester; Mr H. B. Wilkinson, Ivybridge; Mrs. E. M. Woods, Wanstead; Dr. J. Wiglesworth, Rainhill; Mr. Chisholm Williams, Lond.; W. D. W.; Messrs. Willing, Lond.; W. H. W. B.

Letters, each with enclosure, are also acknowledged from—

A.—A., Fordingbridge; A. R. M.; Messrs. Armour and Co., Lond.; A. L.; A. H. S. R.

B.—Mr. G. W. Brown, Hanley; Mr. H. Butterfield, Northampton; Mr. F. J. Breakell, Preston; Mr. W. F. Brook, Swansea; Messrs. R. Boyle and Son, Lond.; Mr. J. S. Beveridge, Milnathort; B. M. M., Purley; Messrs. Boutelleau and Co., Barbezieux, France.

C.—Dr. J. J. Crowley, Cork; Dr. C. S. Crichton, Abroath; Dr. C. E. Cooper, Ivybridge; Messrs. Curling, Wyman, and Co., Lond.; Messrs. Clark Bros. and Co., Lond.; Mr. G. E. W. Cotter, Lond.

D.—Dewsbury Infirmary, Secretary of; Dr., Huddersfield.

E.—Mr. F. H. Evans, St. Albans; East Anglian Sanatorium, Nayland, Matron of; E. A. F.; Mr. J. Elliot, Stroud.

F.—Mr. P. V. Fry, Haworth; Mr. F. P. Flood, Merthyr Tydvil; Mr. A. W. Forrester, Loughrea; F. W.; F. G. L.; F.

G.—Mr. J. Greenway, Southport; Mr. H. J. Glaisher, Lond.; G. L.; Dr. J. C. Gilchrist, Dumfries; Mr. J. Gilchrist, Port Bannatyne; Mr. A. Gibbs, Lond.; Guest Hospital, Dudley, Secretary of; G. A. B.; Messrs. Gardiner and Co., Wisbech.

H.—Messrs. Hooper and Co., Lond.; Mr. D. S. Henderson, Rotherham; Miss A. M. Hinnell, Kingston-on-Thames; Messrs. Hingston and Carter, Liskeard; Mr. T. Hunt, Wellington College; H. P. B.; Mr. T. A. B. Harris, Raunds; Dr. J. Field Hall, Lond.; Dr. R. S. Hindmarch, Sunderland.

I.—Invernith Lodge Retreat, Colinsburgh, Medical Superintendent of; Dr. I. Ivey, Staveley Town.

J.—J. S. R.; J. L. S.; Mr. T. W. Jeffrey, West Chislehurst; Jersey General Dispensary, Secretary of: J. W.; J. S.

K.—Kumbakonam Municipal Council, India, Vice-chairman of; Mr. W. Kirwan, Oranmore; Professor S. Kitasato, Tokyo, Japan.

M.—Dr. W. Murrell, Lond.; Manager, Cardiff; M.D.; Mrs. McConaghy, Westward Ho; Mr. A. D MacGregor, West Malvern; Dr. S. A. Moore, Warblington; Male Nurse Temperance Co-operation, Lond.; Dr. J. Moore, Enfield.

N.—Nurses' Supply Association, Manchester; Mr. E. H. Norman, Lond.

O.—Dr. A. R. Omar, Abou Tig, Egypt.

P. [illegible] Mr. R. W. Pearson, Devizes; Dr. L. L. Proksch, Krantzkop, South Africa.

R.—Captain F. G. Richards, R.A.M.C., Bombay; Messrs. Reinheimer and Co., Surbiton; R. D. J.; R. J. M.; Royal Southern Hospital, Liverpool, Secretary of; R. A. D; Dr. M. W. Renton, Market Harborough; Mr. A. W. Rees, Lond.; Mr. J. W. Rollings, Dunstable.

S.—Mr. W. Savage, Burslem; Dr. J. Shaw, Liverpool; Dr. J. L. Salmond, Capelulo; Scottish Poor-law Medical Officers' Association, Glasgow; Sanitas Electrical Co., Secretary of; Messrs. J. Stott and Co, Oldham; Rev. E. Snepp, Thame; Mr. H. E. Saul, Sandgate; Dr H. K. Smyth, Gwelo, South Africa; Martin H. Smith Co., New York; Salford Union, Clerk of.

T.—Messrs. J. Turner and Co, Queensferry; Dr. L. Thorne Thorne, Lond.; Dr. J. Taylor, Lond.; Dr. W. H. Thomas, Garthmyl; Mr. R. Thomas, Stockton Heath.

V.—Dr. S. A. Villa, Hong-Kong; Mr. J. F. B. de Villiers, Aberdeen; V. T. L.; V. F. F.

W.—Dr. E. Williamson, Bath; Mr. A. O. Way, Amersham; Dr A. H. Wood, Poole,; W. G; Messrs. H. Wilson and Son, Lond.; Wolverhampton Eye Infirmary, Secretary of; Dr. R S Wainewright, Cromer; Dr. F. E Wainwright, Lond.; Mr. H. C. Wills, Plymouth.

Y.—Dr. M. Young, Stockport.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 6 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières, Paris.

A Presidential Address

ON

THE INFLUENCE OF BRAIN-POWER ON HISTORY.

Delivered before the British Association for the Advancement of Science, at Southport, on Sept. 9th, 1903,

By Sir NORMAN LOCKYER, K.C.B., LL.D., F.R.S.,

PRESIDENT OF THE ASSOCIATION

[AFTER a sympathetic reference to the recent death of the Marquis of Salisbury, whom he described as "one of the most illustrious of our Past Presidents," Sir Norman Lockyer proceeded as follows:]

THE BRITISH ASSOCIATION AS A POSSIBLE FACTOR IN NATIONAL EDUCATION.

Last year, when this friend of science ceased to be Prime Minister, he was succeeded by another statesman who has shown in many utterances that he has a clear understanding of the real place of science in modern civilisation. We then have good grounds for hoping that the improvement in the position of science in this country which we owe to the one will also be the care of his successor, who has honoured the Association by accepting the unanimous nomination of your Council to be your President next year.

On this we may congratulate ourselves all the more because I think, although it is not generally recognised that the century into which we have now well entered may be more momentous than any which has preceded it, and that the present history of the world is being so largely moulded by the influence of brain-power, which in these modern days has to do with natural as well as human forces and laws, that statesmen and politicians will have in the future to pay more regard to education and science as empire-builders and empire-guarders than they have paid in the past. The nineteenth century will ever be known as the one in which the influences of science were first fully realised in civilised communities [illegible] hat it seems rash tc [illegible] more important in [illegible]

Disraeli, ir [illegible] year, spoke as follows: "How much has happened in these 50 years—a period more remarkable than any, I will venture to say, in the annals of mankind. I am not thinking of the rise and fall of empires, the change of dynasties, the establishment of governments. I am thinking of those revolutions of science which have had much more effect than any political causes, which have changed the position and prospects of mankind more than all the conquests and all the codes and all the legislators that ever lived."[1]

Britain in the middle of the last century was certainly the country which gained the most by the advent of science, for she was then in full possession of those material gifts of nature, coal and iron, the combined winning and utilisation of which, in the production of machinery and in other ways, soon made her the richest country in the world With the winning of mineral wealth and the production of machinery in other countries our superiority as depending upon our first use of vast material resources was reduced, and while the foundations of our superiority depending upon our *material resources* were being thus sapped by a cause *which was beyond our control*, our statesmen and our universities were blind leaders of the blind, and our other asset, our mental resources, which was within our control, was culpably neglected. If our Ministers had been more wise and our universities more numerous and efficient our *mental resources* would have been developed by improvements in educational method, by the introduction of science into schools, and, more important than all the rest, by the teaching of science by experiment, observation, and research, and not from books. It is because this was not done that we have fallen behind other nations in properly applying science to industry, so that our applications of science to industry are relatively less important than they were.

Now the objects of the British Association as laid down by its founders 72 years ago are "To give a stronger impulse and a more systematic direction to scientific inquiry—to promote the intercourse of those who cultivate science in different parts of the British Empire with one another and with foreign philosophers—to obtain a more general attention to the objects of science and a removal of any disadvantages of a public kind which impede its progress." In the main my predecessors in this chair have dealt, and with great benefit to science, with the objects first named.

But at a critical time like the present I find it imperative to depart from the course so generally followed by my predecessors and to deal with the last object named, for unless by some means or other we "obtain a more general attention to the objects of [illegible] disadvantages of a public kind [illegible] shall suffer in competition w[illegible]h science is more generally utilised for the purposes of the national life. This struggle is one in which science and brains take the place of military weapons, which up to the present have determined the history and fate of nations. The school, the university, the laboratory, and the workshop are the battlefields of this new warfare.

[Sir Norman Lockyer here quoted the Prince of Wales's admonition to Great Britain to wake up and also passages from speeches delivered by Lord Rosebery and Mr. Joseph Chamberlain in January, 1901, relative to the commercial rivalry of nations. He continued:]

The Prime Minister said at Manchester in October, 1902:—"The existing educational system of this country is chaotic, is ineffectual, is utterly behind the age, makes us the laughing-stock of every advanced nation in Europe and America, puts us behind, not only our American cousins, but the German and the Frenchman and the Italian."

A careful study of the early history of the Association leads me to the belief that the function I am now dwelling on was strongly in the minds of the founders; but be this as it may, let [illegible] framed to [illegible] and so to [illegible] follow public opinion. Firstly, unlike all the other chief metropolitan societies, its outlook is not limited to any branch or branches of science. Secondly, we have a wide and numerous fellowship, including both the leaders and the lovers of science, in which all branches of science are and always have been included with the utmost catholicity—a condition which renders strong committees possible on any subject. Thirdly, an annual meeting at a time when people can pay attention to the deliberations, and when the newspapers can print reports. Fourthly, the possibility of beating up recruits and establishing local committees in different localities, even in the King's dominions beyond the seas, since the place of meeting changes from year to year, and is not limited to these islands. We not only, then, have a scientific Parliament competent to deal with all matters, including those of national importance, relating to science, but machinery for influencing all new councils and committees dealing with local matters, the functions of which are daily becoming more important. The machinery might consist of our corresponding societies. We already have affiliated to us seventy societies with a membership of 25,000. Were this number increased so as to include every scientific society in the Empire, metropolitan and provincial, we might eventually hope for a membership of half a million. I am glad to know that the Council is fully alive to the importance of giving a greater impetus to the work of the corresponding societies. During this year a committee was appointed to deal with the question; and later still, after [illegible] held between [illegible] committee to [illegible] which will be [illegible]

In view of the increasing importance of science to the nation at large, [illegible]

L

---

[1] Nature, Nov. 27th, 1873, vol. ix., p. 71

> be addressed to the societies, through the corresponding societies committee, asking them to appoint standing British Association sub-committees, to be elected by themselves, with the object of dealing with all those subjects of investigation common to their societies and to the British Association committees, and to look after the general interests of science and scientific education throughout the provinces and provincial centres. . . .
>
> Your committee desire to lay special emphasis on the necessity for the extension of the scientific activity of the corresponding societies and the expert knowledge of many of their members in the direction of scientific education They are of opinion that immense benefit would accrue to the country if the corresponding societies would keep this requirement especially in view with the object of securing adequate representation for scientific education on the Education Committees now being appointed under the new Act. The educational section of the Association having been but recently added, the corresponding societies have as yet not had much opportunity for taking part in this branch of the Association's work; and in view of the reorganisation in education now going on all over the country your committee are of opinion that no more opportune time is likely to occur for the influence of scientific organisations to make itself felt as a real factor in national education. . .

I believe that if these suggestions or anything like them—for some better way may be found on inquiry—are accepted great good to science throughout the empire will come. Rest assured that sooner or later such a guild will be formed because it is needed. It is for you to say whether it shall be, or form part of, the British Association. We in this empire certainly need to organise science as much as in Germany they find the need to organise a navy. The German Navy League, which has branches even in our colonies, already has a membership of 630,000, and its income is nearly £20,000 a year. A British Science League of 500,000 with a sixpenny subscription would give us £12,000 a year—quite enough to begin with. I believe that the British Association would be a vast gainer by such an expansion of one of its existing functions. Increased authority and prestige would follow its increased utility. The meetings would possess a new interest. There would be new subjects for reports. This magnificent, strong, and complicated organisation would become a living force, working throughout the year instead of practically lying idle for 51 weeks out of the 52 so far as its close association with its members is concerned. There is another matter which I should like to see referred to a committee. The British Association—which, as I have already pointed out, is now the chief body in the empire which deals with the totality of science—is, I believe, the only organisation of any consequence which is without a charter and which has not His Majesty the King as patron.

Lack of Universities.

It is fully recognised that our universities, both in numbers and efficiency, are unequal to the modern needs of our people, so that not only our captains of industry, but those employed in the nation's work generally, do not secure a training similar to that afforded by other nations.

Chief among the causes which have brought us to the inferiority as compared with other nations in which we find ourselves are our carelessness in the matter of education and our false notions of the limitations of State functions in relation to the conditions of modern civilisation. Time was when the navy was largely a matter of private and local effort. William the Conqueror gave privileges to the Cinque Ports on the condition that they furnished 52 ships when wanted. In the time of Edward III., of 730 sail engaged in the siege of Calais 705 were "people's ships." All this has passed away; for our first line of defence we no longer depend on private and local effort. Time was when not a penny was spent by the State on elementary education. Again, we no longer depend upon private and local effort. The navy and primary education are now recognised as properly calling upon the public for the necessary financial support. But when we pass from primary to university education, instead of State endowment we find State neglect; we are in a region where it is nobody's business to see that anything is done. We in Great Britain have 13 Universities competing with 134 State and privately endowed universities in the United States and 22 State-endowed universities in Germany. I leave other countries out of consideration for lack of time and I omit all reference to higher institutions for technical training, of which Germany alone possesses nine of university rank, because they are less important; they instruct rather than educate, and our want is education. The German State gives to one university more than the British Government allows to all the universities and university colleges in England, Ireland, Scotland, and Wales put together. These are the conditions which regulate the production of brain-power in the United States, Germany, and Great Britain respectively, and the excuse of the Government is that this is a matter for private effort. If we grant that there was some excuse for the State's neglect so long as the higher teaching dealt only with words, and books alone had to be provided, it must not be forgotten that during the last 100 years not only has knowledge been enormously increased but things have replaced words, and fully equipped laboratories must take the place of books and class-rooms if university training worthy of the name is to be provided. There is more difference in size and kind between an old and a new university than there is between the old caravel and a modern battleship, and the endowments must follow suit.

What are the facts relating to private endowment in this country? In spite of the munificence displayed by a small number of individuals in some localities the truth must be spoken. In depending in our country upon this form of endowment we are trusting to a broken reed. If we take the twelve English university colleges, the forerunners of universities unless we are to perish from lack of knowledge, we find that private effort during 60 years has found less than £4,000,000—that is, £2,000,000 for buildings and £40,000 a year income. This gives us an average of £166,000 for buildings and £3300 for yearly income. What is the scale of private effort we have to compete with in regard to the American universities? In the United States during the last few years universities and colleges have received more than £40,000,000 from this source alone; private effort supplied nearly £7,000,000 in the years 1898-1900. Next consider the amount of State aid to universities afforded in Germany. The buildings of the new University of Strassburg have already cost nearly £1,000,000—that is, about as much as has yet been found by private effort for buildings in Manchester, Liverpool, Birmingham, Bristol, Newcastle, and Sheffield. The Government annual endowment of the same German university is more than £49,000. This is what private endowment does for us in England, against State endowment in Germany. But the State does really concede the principle; its present contribution to our universities and colleges amounts to £155,600 a year. No capital sum, however, is taken for buildings. The State endowment of the University of Berlin in 1891-92 amounted to £168,777. When, then, we consider the large endowments of university education both in the United States and Germany it is obvious that State aid only can make any valid competition possible with either. The more we study the facts the more do we find that we to a large extent lack both of the sources of endowment upon one or other, or both, of which other nations depend.

To compete on equal grounds with other nations we must have more universities. But this is not all—we want a far better endowment of all the existing ones, not forgetting better opportunities for research on the part of both professors and students. Another crying need is that of more professors and better pay. Another is the reduction of fees; they should be reduced to the level existing in those countries which are competing with us to, say, one-fifth of their present rates, so as to enable more students in the secondary and technical schools to complete their education. In all these ways facilities would be afforded for providing the highest instruction to a much greater number of students. At present there are almost as many professors and instructors in the universities and colleges of the United States as there are day students in the universities and colleges of the United Kingdom. The facts show that in this country we *cannot depend upon private effort to* put matters right. How about local effort? Anyone who studies the statistics of modern municipalities will see that it is impossible for them to raise rates for the building and up-keep of universities. The buildings of the most modern university in Germany have cost £1,000,000. For up-keep the yearly sums found, chiefly by the State, for German universities of different grades, taking the incomes of seven out of the 22 universities as examples, are:—

First class	Berlin	£130,000
Second class	Bonn Göttingen	56,000
Third class	Königsberg Strassburg	48,000
Fourth class	Heidelberg Marburg	37,000

Thus, if Leeds, which is to have a university, is content with the fourth-class German standard, a rate must be levied of 7*d.* in the pound for yearly expenses, independent of all buildings. But the facts are that our towns are already at the breaking strain. During the last 50 years, in spite of enormous increases in rateable values, the rates have gone up from about 2*s.* to about 7*s.* in the pound for real local purposes. But no university can be a merely local *institution.*

I have pointed out that in old days our navy was chiefly provided by local and private effort. Fortunately for us those days have passed away; but some 20 years ago, in spite of a large expenditure, it began to be felt by those who knew that in consequence of the increase of foreign navies our sea-power was threatened, as now, in consequence of the increase of foreign universities, our brain-power is threatened. The nation slowly woke up to find that its enormous commerce was no longer insured at sea, and that in relation to foreign navies our own had been suffered to dwindle to such an extent that it was no longer capable of doing the duty which the nation expected of it even in times of peace. At first this revelation was received with a shrug of incredulity and the peace-at-any-price party denied that anything was needed, but a great teacher arose.[2] As the facts were inquired into the suspicion changed into an alarm; men of all parties saw that something must be done. Later the nation was thoroughly aroused and with an universal agreement the principle was laid down that, cost what it might to enforce our sea-power, our navy must be
than those of any
establishing this
effect to it. What
l inquiry? A Bill
was brought in in 1888 and a sum of £21,500,000 was voted in order, during the next five years, to inaugurate a large shipbuilding programme, so that Britain and Britain's commerce might be guarded on the high seas in any event Since then we have spent £120,000,000 on new ships and this year we spend still more millions on still more new ships. If these prove insufficient to safeguard our sea-power there is no doubt that the nation will increase them, and I have not heard that anybody has suggested an appeal to private effort.

How, then, do we stand with regard to universities, recognising them as the chief producers of brain-power and therefore the equivalents of battleships in relation to sea-power? In the United Kingdom we had until quite recently 13.[3] Of these, one is only three years old as a teaching university and another is still merely an examining board. In Germany there are 22 universities; in France, under recent legislation, 15; and in Italy, 21. It is difficult to give the number in the United States, because it is clear, from the
oner of Education,
some universities,
of universities in
are 46 with more
than 50 professors and instructors, and 13 with more than 150. I will take that figure. Suppose we consider the *United States* and Germany, our chief commercial competitors, and apply the Admiralty principle. We should require, allowing for population, eight additional universities at the very lowest estimate, some of which, of course, will be colleges promoted to university rank and fitted to carry on university work. Three of them are already named: Manchester, Liverpool, Leeds. Let us take this number and deal with it on the battleship condition, although a modern university on American or German models will cost more to build than a *battleship. If our present university shortage be dealt with* on battleship conditions, to correct it we should expend at
pay-sheet
yearly for
uild either
ships or universities without manning them. Let us say, roughly, capitalising the yearly payment at 2½ per cent., £24,000,000. At this stage it is important to inquire whether this sum, arrived at by analogy merely, has any relation to our real university needs. I have spent a year in making inquiries, as full as I could make them, *of friends conversant* with the real present needs of each of the universities, old and new. I have obtained statistics which would fill a volume, and personally I believe that this sum at least is required to bring our university system up to anything like the level which is insisted upon both in the United States and in Germany. Even Oxford, our oldest University, will still continue to be a mere bundle of colleges unless £3,000,000 are provided to enable the University, properly *so-called, to take her place among her sisters* of the modern world; and Sir Oliver Lodge, the principal of our very youngest university, Birmingham, has shown in detail how £5,000,000 can be usefully and properly applied in that one locality to utilise for the good of the nation the enthusiasm and scientific capacity which are only waiting for adequate opportunity of development.

How is this money to be raised? I reply, without hesitation, *Duplicate the Navy Bill of 1888-89*; do at once for brain-power what we so successfully did then for sea-power. Let £24,000,000 be set apart from one asset, our national wealth, to increase the other, brain-power. Let it be assigned and borrowed as it is wanted; there will be a capital sum for new buildings to be erected in the next five or ten years, the interest of the remainder to go towards increased annual endowments. There need be no difficulty about allocating money to the various institutions. Let each university make up its mind as to which rank of the German universities it wishes to emulate. When this claim has been agreed to, the sums necessary to provide the buildings and teaching staff of that class of university should be granted without demur. It is the case of battleships over again and money need not be spent more freely in one case than in the other. Let me at once say that this sum is not to be regarded as practically gone when spent, as in the case of a short-lived ironclad. *It is a loan* which will bear a high rate of interest. This is not my opinion merely; it is the opinion of those concerned in great industrial enterprises and fully alive to the origin and effects of the present condition of things. I have been careful to point out that the statement that our industries are suffering from our relative neglect of science does not rest on my authority. But if this be true, then if our annual production is less by only £2,000,000 then it might have been, having £2,000,000 less to divide would be equivalent to having £40,000,000 or £50,000,000 less capital than we should have had if we had been more scientific.

Sir John Brunner, in a speech connected with the Liverpool School of Tropical Medicine, stated recently that if we as a nation were now to borrow ten millions of money in order to *help science* by putting up buildings and endowing professors, we should get the money back in the course of a generation a hundredfold. He added that there was no better investment for a business man than the encouragement of science and that every penny he possessed had come from the application of science to commerce. According to Sir Robert Giffen, the United Kingdom as a going concern was in 1901 worth £16,000,000,000. Were we to put aside £24,000,000 for gradually organising, building, and endowing new universities, and making the existing ones more efficient, we should still be worth £15,976,000,000—a property well worth defending by all the means, and chief among these brain-power, we can command.

If it be held that this, or anything like it, is too great a price to pay for correcting past carelessness or stupidity, the reply is that the £120,000,000 recently spent on the navy, a sum five times greater, has been spent to correct a sleepy blunder, not one whit more inimical to the future welfare of our country than that which has brought about our present educational position. We had not sufficiently recognised what other nations had done in the way of ship-building, just as until now we have not recognised what they have been doing in university building. Further, I am told that the sum of £24,000,000 is less than half the amount by which Germany is yearly enriched by having improved upon our chemical industries, owing to our lack of scientific training. Many other industries have been attacked in the same way since; but taking this one instance alone, if we had spent this money 50 years ago, when the Prince Consort first called attention to our backwardness, the nation would now be much richer than it is and would have much less to fear from competition *Suppose* we were to set about putting our educational house in order, so as to secure a higher quality and greater quantity of brain-power, it would not be the first time in history that this has been done. Both Prussia after Jena and France after Sedan acted on the view:—

> "When land is gone and money spent,
> Then learning is most excellent."

---

[2] Captain Mahan of the United States Navy, whose book, "On the Influence of Sea-power on History," has suggested the title of my address.

[3] These are Oxford, Cambridge, Durham Victoria, Wales, Birmingham, London, St. Andrews, Glasgow, Aberdeen, Edinburgh, Dublin, and Royal University.

After Jena, which left Prussi [illegible] lacerated mass," the King and his wise [illegible] them men who had gained knowledge from Kant, determined, as they put it, "to supply the loss of territory by intellectual effort." What did they do? In spite of universal poverty, three universities, to say nothing of observatories and other institutions, were at once founded, secondary education was developed, and in a few years the mental resources were so well looked after that Lord Palmerston defined the kingdom in question as "a country of damned professors."

After Sedan—a battle, as Moltke told us, "won by the schoolmaster"—France made even more strenuous efforts. The old University of France, with its "academies" in various places, were replaced by 15 independent universities, in all of which are faculties of letters, sciences, law, and medicine. The development of the University of Paris has been truly marvellous. In 1897-98 there were 12,000 students, and the cost was £200,000 a year. But even more wonderful than these examples is the "intellectual effort" made by Japan, not after a war, but to prepare for one. The question is, Shall we wait for a disaster and then imitate Prussia and France, or shall we follow Japan and thoroughly prepare by "intellectual effort" for the industrial struggle which lies before us? Such an effort seems to me to be the first thing any national or imperial scientific organisation should endeavour to bring about.

THE IMPORTANCE OF RESEARCH WORK.

When dealing with our universities I referred to the importance of research, as it is now generally acknowledged to be the most powerful engine of education that we possess. But education, after all, is but a means to the end, which, from the national point of view, is the application of old and the production of new knowledge. Its national importance apart from education is now so generally recognised that in all civilised nations except our own means of research are being daily more amply provided for all students after they have passed through their university career; and, more than this, for all who can increase the country's renown or prosperity by the making of new knowledge, upon which not only commercial progress, but all intellectual advance must depend. I am so anxious that my statement of our pressing, and indeed imperative, needs in this direction should not be considered as resting upon the possibly interested opinion of a student of science merely that I must trouble you with still more quotations. Listen to Mr. Balfour:—

> I do not believe that any man who looks round the equipment of our universities or medical schools or other places of education can honestly say in his heart that we have done enough to equip research with all the costly armoury which research must have in these modern days. We, the richest country in the world, lag behind Germany, France, Switzerland, and Italy. *Is it not disgraceful? Are we too poor or are we too stupid?*[4]

It is imagined by many who have given no thought to the matter that this research should be closely allied with some application of science being utilised at the time. Nothing could be further from the truth; nothing could be more unwise than such a limitation. Surely all the laws of nature will be ultimately of service, and therefore there is much more future help to be got from a study of the unknown and the unused than we can hope to obtain by continuing the study of that which is pretty well known and utilised already. It was a king of France, Louis XIV., who first commended the study of the *même inutile*. The history of modern science shows us more and more as the years roll on the necessity and advantage of such studies, and therefore the importance of properly endowing them; for the production of new knowledge is a costly and unremunerative pursuit.

Years ago we had Faraday apparently wasting his energies and time in playing with needles; electricity now fills the world. To-day men of science in all lands are studying the emanations of radium; no research could be more abstract; but who knows what advance in human thought may follow or what gigantic world-transforming superstructure may eventually be raised on the minute foundation they are laying? If we so organise our teaching forces that we can use them at all stages, from the gutter to the university, to sift out for us potential Faradays—to utilise the mental products which otherwise would be wasted—it is only by enabling such men to continue their learning after their teaching is over that we shall be able to secure the greatest advantage which any educational system can afford. It is now more than 30 years ago that my attention was specially drawn to this question of the endowment of research—first, by conversations with M. Dumas, the permanent secretary of the Academy of Sciences, who honoured me by his friendship; and, secondly, by my association with Sir Benjamin Brodie and Dr. C. E. C. Appleton in their endeavours to call attention to the matter in this country. At that time a general scheme of endowment suggested by M. Dumas was being carried out by M. Duruy. This took the form of the "École spéciale des Hautes Études"; it was what our fellowship system was meant to be—an endowment of the research of post-graduate students in each seat of learning. The French effort did not begin then.

I may here tell, as it was told me by Dumas, the story of Léon Foucault, whose many discoveries shed a glory on France and revived French industry in many directions.[5] In 1851, when Prince Napoleon was President of the Republic, he sent for Dumas and some of his colleagues and told them that during his stay in England, and afterwards in his study of the Great Exhibition of that year, he had found there a greater industrial development than in France and more applications of science, adding that he wished to know how such a state of things could be at once remedied. The answer was that new applications depended upon new knowledge and that therefore the most direct and immediate way was to find and encourage men who were likely by research in pure science to produce this new knowledge. The Prince-President at once asked for names; that of Léon Foucault was the only one mentioned during the first interview. Some time afterwards Foucault informed Dumas that the Prince-President had been discussing with him the possible improvement of French science and industry and had given him 200,000 francs, requesting him to do all in his power to aid the State. Foucault ended by saying that, on realising the greatness of the task thus imposed upon him, the responsibility seemed more than he could bear. In 1872 a society for the organisation of academical study was formed in England in connection with the inquiry into the revenues of Oxford and Cambridge, and there was a famous meeting at the Freemasons' Tavern, Mark Pattison being in the chair. Brodie, Rolleston, Carpenter, and Burdon-Sanderson were among the speakers and the first resolution carried was, "That to have a class of men whose lives are devoted to research is a national object." The movement died in consequence of the want of sympathy of the university authorities.[6]

In the year 1874 the subject was inquired into by the late Duke of Devonshire's Commission and after taking much remarkable evidence, including that of Lord Salisbury, the Commission recommended to the Government that the then grant of £1000, which was expended by a committee appointed by the Royal Society on instruments needed in researches carried on by private individuals, should be increased, so that personal grants should be made. This recommendation was accepted and acted on; the grant was increased to £4000, and finally other societies were associated with the Royal Society in its administration. The committee, however, was timorous, possibly owing to the apathy of the universities and to the general carelessness on such matters, and only one personal grant was made; the whole conception fell through. Meantime, however, opinion has become more educated and more alive to the extreme importance of research to the nation, and in 1891 a suggestion was made to the Royal Commission which administers the proceeds of the 1851 Exhibition that a sum of about £6000 a year available for scholarships should be employed in encouraging post-graduate research throughout the whole empire. As what happened is told in the Memoirs of Lord Playfair it is not indiscreet in me to state that when I proposed this new form of the endowment of research it would not have surprised me if the suggestion had been declined. It was carried through by Lord Playfair's enthusiastic support. This system has been at work ever since, and the good that has been done by it is now generally conceded. It is a supreme satisfaction to me to know that in this present year of grace the national importance of the study of the *même inutile* is more generally recognised than it was during the times to which I have referred in my brief survey; and, indeed, we students are fortunate in having the support of two members of His Majesty's Government, who two years ago spoke with no uncertain sound upon this matter, Mr. Balfour and Mr. Chamberlain:—

> Do we lack the imagination required to show what these apparently remote and abstract studies do for the happiness of mankind? We can appreciate that which obviously and directly ministers to human

---

[4] Nature, May 30th, 1901.

[5] See Proceedings of the Royal Society, vol. xvii., p. lxxxiii.

[6] See Nature, November and December, 1872.

[illegible] seem somehow or another to be deficient [illegible] in that longer sight which sees in [illegible]cessary, or immediate result the [illegible] shall give far greater happiness to [illegible]terial industrial advancement can [illegible] fear that lacking that imagination [illegible] in the glorious race run now by civilised countries in pursuit of knowledge, and we have permitted ourselves so far to too large an extent to depend upon others for those additions to our knowledge which surely we might have made for ourselves ?[7]

I would remind you that all history shows that progress—national progress of every kind—depends upon certain individuals rather than upon the mass *Whether you take religion or literature or political* government or art or commerce the new ideas the great steps have been made by individuals of superior quality and genius who have as [illegible] So [illegible] n to [illegible] own [illegible] *proceedings Therefore what we have to do and this is our special task* and object, is to produce more of these great men[8]

I finally come to the political importance of research A country's research is as important in the long run as its battleships The most eloquent teaching as to its national value we owe to Mr Carnegie for he has given the sum of £2,000 000 to found a system of endowments, his chief purpose being, in his own words, "to secure if possible for the United States of America leadership in the domain of discovery and the utilisation of new forces for the benefit of man" Here is a distinct challenge to Britain Judging by experience in this country, in spite of the magnificent endowment of research by Mond and Lord Iveagh, the only source of possible competition in the British interest is the State, which certainly could not put the 1/8000th part of the accumulated wealth of the country to better use, for without such help both our universities and our battleships will become of rapidly dwindling importance It is on this ground that I have included the importance of endowing research among the chief points to which I have been anxious to draw your attention

THE NEED OF A SCIENTIFIC NATIONAL COUNCIL

In referring to the new struggle for existence among civilised communities I pointed out that the solution of a large number of scientific problems is now daily required for the State service and that in this and other ways the source [illegible] changed [illegible] scientific [illegible] of the public departments, and the amount of scientific work done by and for the nation was brought before the Royal Commission on Science presided over by the late Duke of Devonshire now more than a quarter of a century ago The Commission unanimously recommended that the State should be aided by a [illegible] s [illegible] of the resources of modern science to the economic industrial and agricultural development of India has for many years engaged the earnest attention of the Government of that country The Famine Commissioners of 1878 laid much stress on the institution of scientific inquiry and experiment designed to lead to the gradual increase of the food supply and to the greater stability of agricultural outturn while the experience of recent years has indicated the increasing importance of the study of the economic products and mineral bearing tracts Lord Curzon has recently ordered the heads of the various scientific departments to form a board, which shall meet twice annually, to begin with, to formulate a programme and to review past work The board is also to act as an advisory committee to the Government[9] providing among other matters for the proper co ordination of all matters of scientific inquiry affecting India's welfare Lord Curzon is to be warmly congratulated upon the step he has taken, which is certain to bring benefit to our great dependency

The importance of such a board is many times greater at home, with so many external as well as internal interests to look after—problems common to peace and war, problems requiring the help of the economic as well as of the physical sciences It may be asked, What is done in Germany, where science is fostered and utilised far more than here? The answer is, There is such a council I fancy, very much like what our Privy Council once was It consists of representatives of the ministry, the universities, the industries, and agriculture It is small, consisting of about a dozen members, consultative, and it reports direct to the Emperor It does for industrial war what military and so-called defence councils do for national armaments, it considers everything relating to the use of brain power in peace—from alterations in school regulations and the organisation of the universities to railway rates and fiscal schemes, including the adjustment of duties I am informed that what this council advises, generally becomes law It should be pretty obvious that a nation so provided must have [illegible] rilled [illegible] of the [illegible] dling [illegible] "the weapons which science places in the hands of those who engage in great rivalries of commerce leave those who are without them however brave, as badly off as were the dervishes of Omdurman against the maxim guns of Lord Kitchener" Without such a machinery as this, how can our ministers and our rulers be kept completely informed on a thousand things of vital importance? Some may say that it is contrary to our habit to expect the Government to interest itself too much or to spend money on matters relating to peace, that war dangers are the only ones to be met or to be studied But this view leaves science and the progress of science out of the question Every scientific advance is now, and will in the future be more and more, applied to war It is no longer a question of an armed force with scientific corps, it is a question of an armed force scientific from top to bottom Science will ultimately rule all the operations both of peace and war and therefore the industrial and the fighting population must both have a large common ground of education These then are some of the reasons which compel me to point out that a scientific council, which might be a scientific committee of the Privy Council, in dealing primarily with the national needs in times of peace, would be a source of strength to the nation

To sum up, then I have endeavoured to point out to you how the nation at present suffers from the absence of a powerful, continuous reasoned expression of scientific opinion, urging that we shall be armed as other nations are with efficient universities and facilities for research to uphold the flag of Britain in the domain of learning and discovery I have also endeavoured to show that in addition to our many existing councils another is required to secure that the benefits which a proper coordination of scientific effort in the nation's interest can bring shall no longer be neglected Let me also remind you that in 1859 when the late Prince Consort occupied this chair, he referred to "impediments' to scientific progress, and said, "they are often such as can only be successfully dealt with by the powerful arm of the State or the long purse of the nation"

CENTENARIANS —At the meeting of the Long Ashton (Somerset) board of guardians held on August 25th it was reported that one of the recipients of outdoor relief named Honour Coleman of Cleeve in Yatton, had recently celebrated her 102nd birthday The oldest person in Somerset is Mrs Eliza Jenkins of Otterford near Taunton, who on Jan 1st, 1903 celebrated her 104th birthday

THE CLIMATES AND HEALTH RESORTS IN THE DOMINION OF CANADA —Under this title Dr Guy Hinsdale has republished from the Transactions of the American Climatological Association of which association he is secretary, a paper which he contributed to the association in 1892 Owing to its great size the climate of Canada is very varied, but many places in the Dominion are exactly suited to those seeking a place in which to recuperate their health A glance at the temperature and rainfall tables will at once show the meteorological conditions which generally prevail *The illustrations to the* pamphlet give the reader good ideas of the remarkably beautiful scenery of parts of Canada. The pamphlet is published by Messrs John Bale Sons and Danielsson, of Oxford House, Great Titchfield street, London W

---

[7] Mr Balfour Nature May 30th 1901

[8] Mr Chamberlain Times Jan 18th 1901

[9] Nature September 4 1902

An Address
ON
SOME POINTS IN ABDOMINAL SURGICAL DISEASES.

Delivered before the Ashton-under-Lyne and District Medical Society

BY E. STANMORE BISHOP, F.R.C.S. ENG.

MR. PRESIDENT AND GENTLEMEN,—Abdominal diseases which require surgical interference may be roughly but very practically divided into two main groups, the one including those cases which require immediate action, and the other those in which some delay is not only permissible but often advisable. Perhaps of the two the former class are the most important and therefore, with your permission, we will discuss these first, reserving the latter until after, when if there is time, something may be said as to them.

Of the cases which require immediate interference there are two classes of most importance: first, those affecting the alimentary canal and, secondly, those affecting the female genital organs. Of the first, those affecting the alimentary tract are of two kinds: those of rupture of an ulcer, gastric, duodenal, enteric, or appendical, and those which depend upon some sudden interference with the blood-supply, as in strangulated hernia, whether internal or external, or in intussusception. In these cases one can scarcely operate too soon. The chances of success decrease with every hour. Gastric ulcer is estimated by Weir and Foote as affecting the population of Europe at the rate of from 4 to 5 per cent. Fiedler found ulceration or its scar in 20 per cent. in women and 1½ per cent. of men, out of 2200 stomachs examined post mortem. Comte estimated that perforation occurs in 14 per cent. of cases, and Barling says that 95 per cent. of patients after perforation certainly die if no operation is done and believes that there is decided doubt as to the 5 per cent. reported recoveries. Weir collected 77 cases of perforation from gastric ulcer. In 21 cases which recovered, the time elapsing before operation averaged 19 hours and in two-thirds of these it was less than 12 hours, whilst in 55 unsuccessful cases, the elapsed time averaged 43 hours and over 24 hours in two-thirds of these. Mayo collected 429 cases of gastric perforation. In 80 of these operation was done. In those operated on during the first 24 hours the mortality was 42 per cent., but of those done after that period over 70 per cent. died. In duodenal ulcer, Collin collected 262 cases, in 242 of which perforation occurred. 51 were operated upon, in 25 of which the lesion was recognised and closed. Of these, 13 patients underwent operation after 30 hours delay and all died; of 12 operated upon within that time eight survived, giving a mortality in the first case of 100 per cent., in the second of 33·3 per cent.

With regard to peritonitis arising from a perforated appendix, Berg has published a very instructive table showing the relation of cures after operation to the time which is allowed to elapse.

Table Showing the Relation of Cures after Operation to the Time Allowed to Elapse.

One day,	9	cases	with	five	cures	(55	per cent.)	
Two days,	14	,,	,,	six	,,	(42	,,	)
Three ,,	20	,,	,,	five	,,	(25	,,	)
Four ,,	10	,,	,,	no	,,	(0	,,	)

Success therefore in treatment of cases of perforation in any region of the alimentary canal depends upon their early recognition and operation. Cases of perforation left alone invariably end fatally. How is this all-important early recognition to be obtained? The answer to this question is really of more importance to the family medical attendant than to anyone else, as he always sees these cases first, and upon his action during the first few hours will depend the fate of the patient.

In order to illustrate this more effectively I will mention a case which I saw in consultation early this year with a very acute practitioner near Manchester. He told me before we saw the patient together that he had a man who was evidently dying, but there seemed no good evidence as to what was the matter with him. The medical adviser had been called to this man early on the morning but one before and found him in intense pain. The pain was, as usual, referred to the area of the solar plexus and after a hypodermic of morphia had been given and the patient was somewhat easier he elicited the following facts. The man was well on the evening before and during the day he had eaten a good dinner of which the rest in the house had also partaken without any bad results but which contained some things which were not very digestible. At night intense pain came on suddenly and he had passed a dreadful night, writhing on the floor with pain, and was so bad that his wife had feared that he would die before help could arrive. The pain had become generalised all over the abdomen but was relieved by the morphia. The abdomen was slightly distended and was rigid all over; the pulse was rapid (120) and the temperature was subnormal. He had taken some liquid food, some of which was rejected but not all. At night the pain returned and more morphia was injected with the same relief. On the next morning the pain returned again; he had spent a fair night and obtained some sleep. Morphia was again used and in the afternoon, as he seemed worse, I was sent for. When I saw him, about 5 P.M., he was sensible, free from pain, and the countenance was not particularly anxious, but the pulse was very intermittent and frequently ceased altogether for a few seconds; in the course of half an hour no pulse at all was felt at the wrist; the lips were pale and the tongue was dry. On exposing the abdomen it was found to be entirely rigid, distended to some extent, clear on percussion everywhere, the liver dulness still remaining, but lessened somewhat. It was but very slightly tender. Questions were replied to readily and the man was perfectly clear-headed. The hands and feet were cold and some perspiration was seen on the forehead. He admitted that for some months he had suffered from dull pain, which had come on an hour or two after food, had been felt chiefly on the right side, in front, beneath the ribs, and also behind between the shoulder blades. He had never vomited blood or food but his stools had occasionally been dark in colour, almost black. The bowels had been regular up to the time of seizure with pain and there had never been any jaundice. After consultation, in which a diagnosis of perforated duodenal ulcer was made, which was afterwards confirmed, we saw him again and found him, as I have said, with no pulse at the wrist and evidently unfit for any operation. He died soon after we left the house.

Duodenal, gastric, enteric, and appendical ulcers, all are amenable to operation, and food or other matters which have escaped into the peritoneum can be washed out of it with a fair prospect of a good result, as we have seen, if only the operation can be done at once, or within 24 hours; afterwards, operation has but little chance. Everything, therefore, depends upon early diagnosis. How is it to be made? It is evident that we cannot suggest laparotomy to everyone who complains of pain in the abdomen, however severe it may be. Persons differ too much in their tolerance of pain and their expressions regarding it for this symptom to carry much weight. Besides, as in this case, the patient can usually be induced to remember something which he has eaten within a reasonable time which might produce acute indigestion. Indeed, one's experience is that very few people indeed, except imaginary invalids who have no other idea in the world but coddling their stomachs, do not frequently and constantly eat things which are more or less risky. Inquiries, therefore, as to previous food, although perfectly necessary, may, if at all relied upon, as often mislead the examiner as put him upon the right scent.

Reference to text-books or monographs on this subject results in the enumeration of many symptoms: these are so vague and hesitating as to have little practical value. Here, for instance, is one taken at random. Speaking of perforation in gastric ulcer, the author says: "It is extremely important to be able to recognise this condition of peritonitis at the earliest possible moment. Palpation ought to show a little tenderness over the ulcer." But another author says that the whole abdomen is tender: how, then, can we localise the "little tenderness" which points to the locality of the ulcer? "Peritonitis sets in with a chill, a rise of temperature to 100° or 103°." Other authorities say that the temperature is lowered. "The patient lies with the knees drawn up and has the characteristic facies." In the case which I have described there was no characteristic facies and in others I have seen, where morphia has also been used, the face has been quite placid and without anxiety. "The pulse is rapid and small—it is now that surgical relief is to be sought without delay."

Lowered or heightened temperature, quickened pulse, great pain, symptoms of collapse, drawn-up knees, and anxious countenance are all to be found also in severe colic, biliary, intestinal, or ureteral. Lately a good deal of stress has been laid upon tenderness by Treves and others, but tenderness, like pain, is a subjective sensation which can only be estimated by the patient himself and cannot be checked effectively by the examiner, so that not much efficient help in diagnosis can be gained from it. When I first wrote on this subject one of my critics summed up the whole question by declaring that no one symptom could be depended upon and that the sooner we recognised that all, or some, or none might be present the sooner we should be able to appreciate the true character of peritonitis. Imagine the lucid and confident state of mind of such a writer or of his disciples when face to face with such a case as I have detailed. But there is one thing which invariably and rapidly follows perforation and which is as certainly absent in acute dyspepsia, or mere colic of any kind, and that is acute peritonitis. This, I presume, will be granted. What is wanted, therefore, is the [illegible] acute peritonitis and this, [illegible] o the entire situation.

In order to act scientifically, in order to act with confidence in any emergency, we must previously have worked out some theory and have tested it as thoroughly as possible. All action is based upon theory, but that theory must be capable of demonstration as to its reasonableness and must be in accord with the facts as we know them. "The most valuable theories," says Fothergill, "are those which connect a number of facts in an easily remembered series." Let us see if we can construct such a theory from the facts available in such cases.

Hilton, in his "Rest and Pain," points out that in all joints the same nerves supply the lining—synovial—membrane, the muscles which move the joint, and the skin over it; that when any inflammatory change begins in the lining membrane, immediately and automatically, a reflex arc of nerve influence is excited through the spinal centres governing that arc and in consequence the muscles ordinarily moving that joint are thrown at once into tonic contraction in order to produce absolute rest to the joint surfaces. Our daily experience proves the truth of this. The first sign of morbus coxæ or of any acute synovitis is the rigidity of the muscles around. Now a joint is not necessarily composed of bone and cartilage, although these structures enter so generally into their construction that we have almost unconsciously come to consider them necessary components. In its essential definition a joint is a solution of continuity between structures, permitting of their movement the one upon the other, a series of muscles capable of producing such movement, and a lining membrane covering the moving surfaces which can secrete sufficient fluid to render such movement smooth, easy, and painless, with a nerve-supply arranged in such a manner as to connect these in their action.

Are not all these essentials present in the abdomen? We have the moving surfaces in the intestines and abdominal walls, the lining secreting membrane in the peritoneum, the muscles producing movement in the muscular walls of the intestine, and the muscular layer of the abdominal wall itself, whilst it could be easily demonstrated, had we time for it to-night, that the sympathetic system of nerves supplying the peritoneum is intimately and definitely related to the nerves supplying the muscles named. I have shown this elsewhere in detail. The abdominal cavity with the structures contained in it may therefore be looked upon as a large joint and the first and automatically present result of inflammatory changes in the peritoneum will be, and must be, *rigidity* of the muscles which ordinarily produce movement between the intestines and the abdominal wall. We cannot observe the rigid condition of the intestinal muscles, although we recognise their effect in the constipation produced, but we can, and do, recognise the rigidity of the muscular wall. It is, I think, the more important to emphasise this because this symptom of rigidity, though always, and I think I have shown necessarily, present in the early stage, is not persistent. The abdominal peritoneum has an immense absorbing surface. Decomposable material, mixed in such cases with many bacteria, rapidly produce septic toxins which are absorbed into the general system, and general sepsis means paralysis of these muscles as well as the rest of the general musculature, so that the main, and often the only, time to appreciate it is at the very time when we most want such a key-sign—that is, in the earliest stages of acute peritonitis. Such want of persistence in cases where the whole patient becomes septicæmic will account for its absence in some cases where the observer has seen them late and has not found this symptom, although post-mortem evidence of acute peritonitis was abundantly present. One word of caution. The practitioner who sees 50 patients a day and who, coming hurriedly in from his open trap on a wet day, places a cold, wet hand on his patient's abdomen, will find acute peritonitis in every patient, and having, as he assumes, demonstrated the absurdity of any reliance upon this sign, will speak always contemptuously of its value; but those who test it fairly will, I am sure, find it to be as I have described it, the key-sign upon which they can depend. It should also be looked for before any morphia is given.

The foregoing remarks will apply, it will be seen, to perforation of the intestine in any region—duodenal, gastric, enteric, or appendical, and slighter and more localised degrees of it will be seen in localised peritonitis, such as occurs, for instance, in peri-appendicitis where a localised peritonitis surrounding a diseased appendix produces localised rigidity of the muscles covering it—a rigidity which will not be present in other regions of the abdomen. A writer in the *New York Medical Journal* recently claimed that rigidity follows the introduction of irritant material into the peritoneum even before peritonitis could have time to develop. I am not inclined to quarrel with this statement, which indeed only enforces the value of this sign for our purpose, but it seems to me a very difficult one either to prove or to disprove since we cannot accurately determine the point of time at which any inflammation actually commences, and especially is this the case in peritonitis. For all practical purposes it may be considered the earliest available symptom of commencing acute peritonitis. It is not seen in the chronic forms, as, e g., in tuberculous peritonitis. I have seen and demonstrated to others rigidity in several cases where peritonitic inflammation and its results were found post mortem, but there is another occasion on which this sign, or rather its absence, is of very great importance. After laparotomy everyone knows the anxiety of the first few (from three to five) days, during which, if peritonitis is going to supervene, it will make its appearance. The fact of having one certain sign to rely upon as evidence renders the absence of this sign a tremendous comfort to all concerned. A case upon which I operated three years ago very well illustrates this point.

The patient was a married woman, aged 57 years, who had had flooding at every period for 18 years. A large multinodular fibroid uterus weighing 7 pounds 13 ounces, with two of the masses in calcareous degeneration, was removed on May 17th. No rigidity followed. All went well for 11 days when the rectum was found to be full of rocky fæces. The bowels had acted regularly both before and after the operation, but the colon had evidently been gradually compressed by the tumour with the result that it had become sacculated, and these recesses were now emptying themselves. It was very tedious clearing the bowel, but this was at last accomplished. A rigor followed with a temperature of 105° F. and high temperature and quick pulse persisted until June 1st when an abscess was opened above the left Poupart's ligament spreading behind the pubis. Over the abscess itself the parts were rigid but the general abdominal wall was soft and supple. For several days we watched carefully for any further rigidity but none appeared, although both pulse and temperature continued high for over a fortnight. The patient perfectly recovered and has been to [illegible] and is at present in perfect health.

[illegible] After [illegible] forating [illegible] ological investigations by Cushing in the Johns Hopkins Hospital in 1899 and by some cases narrated at the Pathological Society of New York in 1900. This was that matters escaping from the duodenum were apt to flow down outside the ascending colon towards the cæcum and so to produce symptoms greatly simulating appendicitis. The rigidity in these cases was sometimes confined to the muscles of the right side and on opening the abdomen there was an absence of foul odour such as is present when the appendix is concerned; whilst the perforation, being seated so high up in the intestinal tract, the infection is milder and the bacteria are fewer and less virulent than they are when escaping from the cæcum or the attached appendix.

It is tempting to refer still further to appendicitis, but I must pass on to strangulated hernia, an old and well-worn subject which need not detain us except that it may be well to emphasise one fact. Of course, we all know that the real danger in both strangulated hernia and intussusception is not in the obstruction to the fæcal circulation but in the interference with the blood-supply. I wonder whether we are also as alive to the fact that the *distension* of the abdomen is a sign that that interference has reached a very dangerous point—a point from which recovery may not follow, not because the gut is paralysed in the sense that it cannot carry on its fæcal contents, but because stasis of the blood-current in the vessels pertaining to that segment has set in and may be followed by gangrene. Looked at in this way—and Kader's experiments have shown us that this is the correct view—it becomes abundantly evident that in no case should we wait until the abdomen becomes at all distended, since the chances of success are thus so severely handicapped. Moreover, the dangers and difficulties of operation are tremendously increased. But a little more time may usefully be devoted to the consideration of the next condition—viz., that of intussusception.

There are two points in connexion with this subject which are of great interest, the one referring to diagnosis, the other to treatment. The information to be found in text-books on this subject does not, I fear, help much in practical diagnosis. You will find one authority giving all the classical symptoms—sausage-shaped mass in the abdomen, passage of blood and mucus in the stools, sudden pain and vomiting, and an os uteri-like body to be felt per rectum. What actually happens in these cases we all know. We are sent for hurriedly to see a child who has been suddenly awakened out of his sleep or suddenly attacked after eating some deleterious thing—children are always eating things they ought not—by pain in his stomach and some vomiting. We are in the middle of surgery hours, perhaps, and a lot of people are waiting, consequently we do not see the child for perhaps an hour, and by that time the youngster is asleep again, breathing quietly. The mother is full of some discovery which she has made, as that some elder child has given him a cake, or something of the sort, and immediately on knowing this she has given him some castor oil or Gregory powder, which she mercifully (?) happened to have in the house. She and a neighbour or two are quite certain that there is nothing more the matter—perhaps we look at the abdomen, perhaps in our hurry to get back again we do not. If we do, and even if we feel it more or less carefully, we are not much wiser since, if we are gentle and the child sleeps on, as the mother begs we will allow him to do—"for he is so tired out, poor thing"—there is no mass of any kind to be felt and the abdomen is quite supple. We inquire if any blood has been passed and are told that that has not been the case. We call the next day and hear that the pain came on again soon after we left and has been repeated once or twice. The bowels have acted slightly, but some irresponsible person has thrown the stool away, and so far as the mother knows—she very evidently knows nothing about it but does not like to admit her ignorance—it was like any other stool. We examine the child again, and this time we pass a finger up the rectum and find nothing there, certainly no os uteri-like mass. The child begins to cry and perhaps to retch. We are suspicious, but what evidence have we? When the child begins to cry the mother takes him and begins to try to quiet him, calling us names to the child probably in order to soothe his ruffled feelings. We decide to wait and very possibly give him some carminative with compound tincture of camphor, or Dover's powder, which at our next visit has made him much easier, and the mother is quite sure that if we only give him some more he will soon be all right. Later the child becomes much worse and someone else is called in or we ask for a consultation. In either case possibly nothing more is discovered until after the child's death, or we hear, to our chagrin, that the case was one of intussusception, has undergone an operation, which was too late, and the child is dead. Now, this is not a pleasant state of things for anyone, neither for the parents, the child, nor the medical attendant; nor is it by any means too pleasant for the man who discovers it later, operates and, probably in the opinion of the parents kills the child. The parents will certainly blame somebody and they are often more catholic in their censure than the unlucky first attendant is inclined to believe.

Can we, by any discussion now, render such a catastrophe less likely to happen? Are there any symptoms we can trust, or is there any new way of looking at the old ones that may throw new light upon them? Let us see. In any intussusception of the intestine, as we all know, one portion of the bowel is placed inside another, so making three layers. Peristalsis of one layer in a previously healthy child can scarcely be appreciated by an observer's hand placed outside the abdominal wall; peristalsis of three layers superimposed the one upon the other, each more internal layer stiffening and rendering more prominent the one above besides stimulating the contraction to a greater pitch than normal, can be appreciated, and usually is with fair ease. The mere superposition of three coats of intestine, when not in a state of active peristalsis, however, does not necessarily render that segment appreciable. It is evident, therefore, that if we are in search of such a thickened segment, our best, and often our only, time for its discovery, is when it is firmly contracted upon itself. That is, of course, when the pain of such contraction is at its worst, and when the child is crying violently, and that is the time when in my experience we most often hurriedly turn the child over to his mother to be soothed and petted into peace again. Then, when he is quiet once more, when both he and the muscular contractions of his bowel are exhausted, we examine again and, failing to find any trace of its presence, decide that it does not exist in the case before us.

Now, again, if you will think of the formation of an intussusception, you will recognise that there is another symptom which is often missed which must necessarily be present in every case. It is never found in mere colic, the only other real alternative in cases such as I have sketched, and is therefore pathognomonic, and consequently of immense value in deciding the diagnosis, that is a bloody exudation with mucus. An intussusception means more than the mere entry of one segment of intestine into another, it means also the compression of the mesenteric vessels to a serious extent. Of these vessels, as everywhere else, the arteries are the most resistant, the vein walls are by far the more easily closed by compression from without. Long then before blood has ceased to be pumped into the entering segment, its escape has been impeded or altogether prevented. The capillaries are filled to bursting point, they must give way and blood be effused into the lumen of the gut. Besides this the mucous glands of the part are unduly stimulated to secretion during this period of engorgement of their nutrifying vessels, and must therefore secrete mucus at a quicker rate and in larger amount. We may take it as proved that bloody mucus will always be present in intussusception How, then, do we come to miss it? Often enough you will have noted that after one or two stools, which may have been thrown away without your seeing them, the action of the intestines below the point of obstruction appears to be in abeyance, no further action of the bowels can be obtained. Possibly there may have been none at all from the first. If you give an enema there is always the possibility that any slight appearance of blood in the water which returns may be so diluted that it may escape notice, or, again, it may be put down to possible injury of the delicate lining membrane of the rectum by the instrument itself, thus introducing a worrying element of doubt. The sphincter is often tightly contracted in these cases, and if the enema is given by a neighbour, or by a nurse in whose gentleness and skill you have not the greatest confidence, some slight tearing of the mucous membrane is very likely to occur. The same tendency to tight contraction will, however, prevent the voluntary escape of the little pool of fluid which you may confidently expect if the case is one of intussusception will be banked up inside, and this very contraction will insure your finding it if, as I advise, you gently introduce your finger within, when on its withdrawal it will be smeared with blood which will be only diluted with mucus, and therefore readily appreciated. Now, I think you will agree that we have here two unmistakeable symptoms upon which we can rely—which are not found in any other condition with which intussusception in children can be confounded, which must necessarily and automatically be present in every case, and which only need to be looked for in a definite way—a way upon which text-books place no emphasis, in order to clear up and to make certain our diagnosis upon secure and scientific grounds.

In concluding what I have to say about diagnosis, I would simply add that the search for the end of the intussusception per rectum appears to me a mere waste, and a most dangerous waste, of time. Consider how far the intussusception must have travelled in, say, the ilio-cæcal variety, which is the most common, before it could possibly come within reach of the finger, and ask yourselves what possible chance would that child have of its life if we are to wait for any such sign. I would expunge this most dangerous symptom from all text-books.

In October, 1901, I saw a case in consultation with two partners in a practice in Manchester. It was that of a child aged 10 months, and there was considerable difference of opinion in the minds of the two men who had both seen the case as to its character. One considered it to be, as it was, a case of intussusception, the other had never been able to feel any tumour and thought the symptoms observed merely due to improper food. The child had been in perfect health until Oct. 1st, when it became fretful and complained [illegible]. As the child had had something [illegible] the mother promptly administere [illegible] result that the bowels which up to that time had acted regularly now ceased to act and neither flatus nor stool had passed up to the fourth day when I saw him. Dover's powder had been given to allay the pain and on examination he was lying quietly, perfectly conscious, and apparently at ease. The child permitted rectal examination without resistance. The pulse was good, normal in character, rhythm, and rapidity. After a while the child began to cry and a mass could then be felt in the right iliac fossa which became hard and soft alternately, with fairly long intervals. When the finger, which had discovered no mass in the rectum, was withdrawn, it was streaked with blood and mucus. Maunsell's operation was performed and this intussusceptum was removed.

Just one word as to treatment. If you will examine this specimen I think that you will see further that the bowel has not merely been pushed into its sheath, the intussuscipiens, but has been *screwed* in, if I may be allowed the term, by its own peristalsis, modified as it is in all cases by the drag of the mesenteric attachment. Would any force directly applied from below, as by injection of air, oil, or water have *unscrewed* it? I fancy that we are all too much possessed by that graphic simile of the glove finger and are inclined to think of the intussusception as simply directly driven forward in a straight line, so that an opposing force acting also in a straight line will be efficient in reducing it. I confess to being very doubtful of these reported cases of success with such treatment and believe that now we have the simple and straightforward operation of Maunsell we cannot too early avail ourselves of this safe and certain way out of our difficulties, safe and certain, that is, if used within a reasonable time and before the bowel has been too much altered by compression of its mesentery.

Similar conditions of collapse, with acute pain, often accompanied by vomiting, with rapid, thin pulse and great pallor are seen in women during the child-bearing period. You have two classes—one marking the rupture of a tubal pregnancy, the other the sudden twisting of the pedicle of a previously existing and slowly growing tumour. The danger in the first case is from the loss of blood, and this, too, requires prompt operation if the patient's life is to be saved—that is, of course, if the rupture takes place, as it most frequently does, into the peritoneal cavity; if rupture into the broad ligament occurs, matters are not so urgent. Such a case was admitted into the Ancoats Hospital on Sept. 14th, 1897. The patient was 28 years old and had been married for 11 years. She had had four previous confinements and one miscarriage, the last child being born six and a half [illegible] iage occurring at three months [illegible] ion had been regular after this [illegible] ad amenorrhœa of eight weeks' [illegible] blood came on August 21st and had never stopped until admission; no shreds or membranes had passed; there was constant gnawing pain which appeared suddenly, lasted for five or six hours, and went off gradually, during which time the discharge increased. The temperature was 100·2° F. on admission. On Sept. 26th the uterus was found to be of nearly normal size, but with an open os and a split cervix. Behind it in Douglas's pouch was a soft elastic mass, extending towards the left side, separable from the uterus. On the right side, the broad ligament could be defined but not on the left. A pulsating artery could be felt in the fornix. On Oct. 4th sudden pain and collapse were present. The abdomen was opened on the same day and a small multilocular cyst of the right ovary was found. The tube on the same side had lost its fimbriæ, its abdominal ostium was closed and there was some swelling of it. Below was a collection of clots which were cleared out; spread over these was the remains of the left tube which had ruptured near its uterine end. The tube was much enlarged and contained an adherent clot. All being removed the abdomen was closed. Quick and perfect recovery followed.

Here is another case. The patient, aged 36 years, was admitted on Oct. 27th, 1902. She was married at the age of 19 years and had had 11 children with one miscarriage. The last child was born in April, 1902; she suckled this child until its death four months later. She had menstruated twice since, the last period being in September, the first week in the month. This period may have been a day or two late. There was for the first time great pain at the right side in the back which passed off as the flow became established; the pain passed down both thighs nearly to the knees. Since September she had had a feeling as though menstruation was about to commence every day. On Oct. 23rd she felt well on rising and was doing her housework, when she was suddenly attacked by intense pain in the epigastrium so severe as to render her unconscious; on recovery she was cold, perspiring, with nausea, but no vomiting; the pain continuing until admission to hospital, always in the epigastrium, but occasionally passing into the right iliac region. This pain was intensified from time to time, when she became faint, with cold sweating. On admission the abdomen was distended, the pulse was rapid and shallow, and some dulness was present in the right iliac region. Operation was performed on the same evening. On opening the peritoneum large quantities of bright fluid blood mingled with black clots escaped as if under tension. The right tube contained a mass of about the size of an orange; this was tied and removed, bleeding, however, still continued. After a little search the omentum, which had been adherent over the tube, was drawn out from above the bladder, to which spot it had retracted, and a bleeding vessel in its torn extremity was discovered and tied. This omentum had evidently formed part of the sac wall. Two pints of saline solution were transfused into the left cephalic vein, and another pint beneath the breasts during the operation. All clots being removed the abdomen was closed. Convalescence was retarded by an empyema which formed in the right pleura; this was opened and drained and ultimately the patient recovered perfectly.

In passing it may be noted how this case confirms the observations of Muscatello who showed by injection of carmine into the peritoneum of animals that this cavity drains away foreign material mainly by currents which carry all such matters towards the lymphatics of the diaphragm [illegible] It is evident and [illegible] work well and that [illegible] ves suffered in save [illegible] rmless in that the [illegible] cavity, because so rapidly removed, were yet virulent enough when they reached the mediastinum to produce pleuritis and consequent empyema.

Of course, the important point in all such cases of ectopic gestation is to anticipate rupture and to remove the sac whilst still intact and this, I believe, can generally be done. Such an operation bears the same relation in point of risk to that undertaken after giving way of the sac that removal of the appendix during a period of rest *does to the same operation* when suppuration has occurred. The points in diagnosis here upon which stress, I believe, should be laid are the occurrence of abnormal bloody discharges in a woman with some of *the signs of* early pregnancy, who has had a missed or even slightly delayed period, and who complains of pain in either or both thighs extending towards the knee in the course of the obturator or anterior crural nerve. Such a woman should be *examined* bimanually without loss of time, and if a small mass is found, as it probably will be, by the side of the uterus, abdominal section should be done without delay. I have operated on six such cases with the happiest results, removing the gestation sac and tube intact and with prompt recovery in each case. Vaginal section has lately been greatly lauded in these cases *as in others.* I have never attempted to remove an ectopic pregnancy in this way and I consider it highly dangerous. One case occurred in Manchester not long since in the practice of another operator in which the hæmorrhage was uncontrollable and the patient died.

The other condition in which sudden pain with vomiting, collapse and quickened pulse, requiring immediate operation may occur in women is found in cases where a tumour, previously known to exist, which has been growing slowly and probably giving but little trouble, suddenly rotates so as to twist the pedicle by which its blood-supply is obtained. Such an occurrence, so far as my experience goes, is very apt to occur soon after parturition, when the sudden alteration in the relations of visceral structures due to the removal of the large mass formed by the pregnant uterus appears to favour the twisting of any pedunculated growth present. It may also be due, as in the case I will relate, to a fall or even in others to no apparent cause at all. Luckily here we have usually some previous history of an abnormal mass to suggest the condition likely to be found. Here, again, it is the veins of the pedicle which are most and soonest compressed. Blood is still pumped into the growth which cannot return, the veins and capillaries become engorged, and hæmorrhage takes place into the tumour mass, especially if it contains a cavity or is of loose texture. The tumour usually rapidly increases in size. Such a tumour I now show you. It was removed from a woman, aged 36 years, who had been aware of the presence of a tumour in the abdomen for some years. One day after a fall downstairs she became suddenly faint and on recovery complained of intense pain over the site of the tumour, which rapidly—within a day or two—increased in size. On admission the abdomen was found greatly distended and tender, the tenderness being most marked over the tumour itself. There was some free fluid in the abdominal cavity. Abdominal section was performed and this tumour was removed. There were three complete turns of the pedicle, which sprung from the right broad ligament. The tumour itself, instead of presenting the usual pearly-grey appearance, was dark brown, almost black in colour. It was removed on the third day from the occurrence and the patient perfectly recovered.

Your patience has enabled me to glance at the conditions in the abdomen which most frequently require immediate surgical interference; there is no time to speak of the many others which also appeal for surgical aid, but with less imperative urgency. May I, however, in closing mention one more case which emphasises to my mind the necessity of looking upon the pelvis and abdomen as one great cavity, and the futility of specialising, as so many are inclined to do, in one single set of female complaints. This was the case of a woman, aged 35 years, who had complained for over 20 years of pain in the left side of the pelvis. This pain was always worst at the menstrual periods. Acting upon this fact, and upon the belief that the ovaries were somewhat larger than normal, abdominal section had been done the year before, and both ovaries had been removed. The pain, however, still continued. Examination per rectum resulted in the discovery of a ureteral calculus wedged in its vesical end, and this stone having been removed through a suprapubic opening in the bladder, the pain disappeared with it. Concentration of the operator's mind upon any one set of organs is a mistake. It must occasionally lead to similar errors.

UPON THE VIRULENCE OF THE BACILLUS OF BOVINE AND HUMAN TUBERCULOSIS FOR MONKEYS.

By ALLAN MACFADYEN, M.D. Edin.

(*From the Laboratory of the Lister Institute of Preventive Medicine.*)

The experiments forming the subject of this note were undertaken with the view of ascertaining in how far the human and bovine strains of the tubercle bacillus agree or differ as regards their infective properties for the monkey. The methods adopted were mainly feeding experiments, as the particular object of the investigation was to determine to what extent the digestive tract is capable of acting as a channel of systemic invasion for tubercle organisms derived either from cattle or from man. There is naturally an entire absence of direct experimental evidence with regard to the possible transmission of the bacillus of bovine tuberculosis to the human subject by means of articles of food. It was therefore considered that the experiments might furnish at the same time indirect evidence upon this important and debateable point. It is in young children that, generally speaking, such bacterial infective processes are liable to occur on account of the anatomical structure of the intestinal wall and its lymphatic system. A food tuberculosis is most likely to appear in children by the consumption of unsterilised dairy milk. One may, indeed, go so far as to say that as regards tuberculosis and its transmissibility through food channels the danger that may exist is peculiar to children at the period in which a milk diet predominates.

The monkey is the species of animal in which results comparable in character to those possibly occurring in man can be obtained. The animals that were employed were, with one exception, rhesus monkeys. The experiments were arranged to favour an infection and, at the same time, to reproduce, as far as was possible, the natural conditions as they occur in man. In the first instance the experiments were made upon young monkeys of an average age of from 12 to 18 months and in the second instance the infective material was almost entirely administered per os. It should also be mentioned that in the feeding experiments neither artificial cultures of the specific organisms nor organisms which had been subjected to a passage through other intermediate and susceptible animals were used. The natural material, proved to contain tubercle bacilli, was employed in all the feeding experiments—viz., the tuberculous tissues of cattle and the tuberculous sputum of man. The experiments in this respect differ from those carried out by certain other observers. It was considered that the test would be of a more conclusive character if the tubercle bacilli as they exist in a natural soil were employed and that a possible source of fallacy through cultural and other modifying factors would be eliminated. Precautions were at the same time taken to insure that the animals were free from tuberculosis and control monkeys of the same age and source were kept under observation in the course of the experiments. 18 monkeys were employed. The experiments consisted in inoculation with bovine tubercle bacilli and in feeding with bovine and human tuberculous material. In how far under such conditions is the relative infectivity of the bacillus of bovine and human tuberculosis demonstrable? The following summary will indicate the results that were obtained.

A.—Inoculation Experiments.

1. Bonnet monkey. An emulsion of the infected glands of a guinea-pig which had died after inoculation with bovine tuberculosis was injected intraperitoneally. Death occurred 19 days after the injection. Post mortem the mesenteric glands were caseating; nodules were found in the spleen, the liver, and the lungs. Tubercle bacilli were present in the lesions.

2. Rhesus monkey. The animal was injected intraperitoneally with the same material as was used for Monkey 1. Death occurred 31 days after the inoculation. Post mortem there was a general tuberculosis.

3. Rhesus monkey. Subcutaneous inoculation with bovine tuberculous material was performed. The animal died 32 days after the inoculation. Post mortem there was a general tuberculosis. Tubercle bacilli were found in the organs.

B.—Feeding Experiments.

(*a*) *With bovine tubercle bacilli.*—1. Rhesus monkey. The animal was fed with about five cubic centimetres of the emulsified udder of a cow proved to contain tubercle bacilli. It died ten days after the feeding. The result was negative owing to premature death.

2. Rhesus monkey. The animal was fed with a small portion of the emulsified udder of a cow. The result was negative as death occurred in two days.

3 Rhesus monkey. The animal was fed with a small portion of a tuberculous udder and nine days subsequently received a second feed.[1] It died 33 days after the first feeding. Post mortem the mesenteric glands were found to be caseating and there were nodules in the spleen and the liver. Tubercle bacilli were found in all the affected organs. No intestinal lesions could be detected.

4. Rhesus monkey. The animal was fed with an emulsion of bovine tuberculous glands and 14 days subsequently with a portion of a diseased udder. It died 35 days after the first feeding. Post mortem nodules were found in the spleen, the liver, and the lungs. The mesenteric glands were enlarged. Tubercle bacilli were found in the lesions. No tuberculous lesions were observed in the intestine.

5. Rhesus monkey. The animal was fed with tuberculous udder. A second and third feed of similar material was given seven and 12 days after the first. Death occurred 45

days after the first feeding experiment. Post mortem nodules were found in the spleen, the liver, and the lungs and the mesenteric glands were enlarged. There were no lesions in the intestine. Tubercle bacilli were found in the affected organs.

6. Rhesus monkey. The animal was fed with a small portion of affected cow's lung and on the ninth and thirty-fifth days a second and third feed were given of similar material. Death followed 57 days after the first feeding. Post mortem general tuberculosis was found but there were no lesions in the intestine.

7. Rhesus monkey. The animal was fed with emulsified lesions of bovine lung. Only one feeding experiment was made. Death took place 65 days subsequently. Post mortem there was general tuberculosis but there were no intestinal lesions. Tubercle bacilli were found in the affected tissues.

(*b*) *With human tubercle bacilli.*—1. Rhesus monkey. The animal was fed with tuberculous sputum. Diarrhœa ensued and death took place after ten days. There were no visible post-mortem signs.

2. Rhesus monkey. Tuberculous sputum was given per os. Diarrhœa supervened and death occurred in ten days. There were no post-mortem signs.

3. Rhesus monkey. Tuberculous sputum was given and the animal died in two days. No post-mortem signs were present.

4 and 5. Rhesus monkeys. The animals were fed with non-tuberculous sputum from a healthy individual in order to control the results in Monkeys 1, 2, and 3. No injurious effects occurred and both animals were alive and well three months after feeding with normal sputum.

6. Rhesus monkey. The animal was fed with normal sputum without ill-effect. Subsequently tuberculous sputum was given and it died within 30 days. Post mortem there was general tuberculosis and bacilli were found in the lesions. Guinea-pigs inoculated with emulsions of the glands and the spleen died from tuberculosis. Tuberculous ulcers were present in the intestine of the monkey.

7. Rhesus monkey. The animal was fed twice with tuberculous sputum and died at the end of 43 days. Post mortem nodules were found in the liver and the spleen. The mesenteric glands were enlarged and distinct intestinal lesions were present. Guinea-pigs after inoculation with the diseased tissues died from tuberculosis in from four to six weeks.

8. Rhesus monkey. The animal was fed once with tuberculous sputum and died 65 days later. Post mortem there were general tuberculosis and ulceration of the intestine. Tubercle bacilli were present in the various lesions.

In the above experiments the monkey proved susceptible to an inoculation with the bacillus of bovine tuberculosis either directly or after one passage through the organism of the guinea-pig. A certain number of the animals died in two or in ten days after feeding with bovine and human tuberculous material. Normal human sputum did not produce this effect and the result suggested some form of intoxication. The monkey fed thrice, twice, or once with the bovine material succumbed to a general tuberculosis in about from one to two months, and fed with the human material the same results and fatal effect were produced in about the same period of time. The young monkey proved to be equally [illegible] the bovine and human strains of the tubercle [illegible] in the effects produced occ[illegible] testinal lesions were found in the case of every monkey that had been fed with human tuberculous material, whilst none of the monkeys fed with the bovine material presented any evidence of tuberculous ulcers in the intestine. Within the limits of these experiments it would appear that virulent bovine tubercle bacilli may pass through the intestinal wall in large numbers without any detectable lesion of the gut being produced. It would also appear that a food tuberculosis can be as readily brought about by the bovine as by the human strain of the tubercle bacillus in the young monkey.

Chelsea, S.W.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.—As a result of the recent Hospital Saturday collections in Plymouth the sum of £372 has been handed over to the treasurer of the South Devon and East Cornwall Hospital.

BROMIDE OF ETHYL AS A GENERAL ANÆSTHETIC AND AS A PRELIMINARY TO ETHER.

BY WILLIAM R. HUGGARD, M.A., M.D. R.U.I., F.R.C.P. LOND.

FOR several years bromide of ethyl has been in daily use as a general anæsthetic with dentists in Switzerland and in Germany. It is regularly used as a preliminary to ether anæsthesia by Professor Kocher of Berne and probably by other surgeons. On the continent bromide of ethyl seems to have passed through the first and second stages of indiscriminate laudation and of almost total banishment and to have reached the final stage of routine employment in suitable cases and in proper doses. In England, however, the use of bromide of ethyl is still extremely restricted. In these circumstances a few notes concerning the drug may be of interest.

Eleven years ago in Vienna I saw it given several times to young people for short operations, such as the removal of adenoids. The rapid anæsthesia, its short duration, the quick return to consciousness, and the absence of any unpleasant effects were very striking. At that time the reaction from the total disuse of the drug was beginning. I did not, however, personally employ it until about four years ago, when, having occasion to give an anæsthetic for Professor Kocher, I administered, in accordance with his wish, bromide of ethyl as a preliminary to ether anæsthesia. As soon as the patient was under the influence of the bromide of ethyl—less than a minute—ether was substituted. The bromide of ethyl anæsthesia passed quietly and rapidly into ether anæsthesia and the patient was ready for operation almost immediately. On the few occasions since when I have given bromide of ethyl alone or followed by ether the result has been most satisfactory and free from any unpleasant symptom. The advantages of this method of ether administration—its rapidity and the absence of struggling—are so obvious that the question turns mainly on its safety. When I first employed this method Professor Kocher told me that it had been for some time in use at Berne and that bromide of ethyl administered by inhalation in a single dose of from 15 to 30 grammes was free from risk, but that prolonged administration or repeated doses were dangerous. He writes in reply to my question whether he still uses this method, under date May 13th, 1903: "Nearly always I give bromethyl first and ether afterwards. I am very satisfied indeed with the rapid anæsthesia I get with it. I have never had any death nor even disagreeable symptoms. We give from 15–30 grammes at the time (for one dose). Only with *very* weak and anæmic people, especially very young children, I prefer giving ether from the beginning." He mentions further that he has been using this plan for nearly ten years.

In looking over the literature of the subject one is struck by the fact that deaths from bromide of ethyl anæsthesia appear to have occurred chiefly, if not altogether, some years ago before the sources of danger were understood and I do not happen to have seen a notice of any death since 1897. Owing to the occurrence of several deaths in the early days of the use of bromide of ethyl the drug had practically dropped out of use and in Gurlt's statistics for 1890–91 at the German Surgical Congress it is reported to have been used only 27 times out of a total number of 24,625 instances of anæsthesia. In 1894 Gurlt reports that bromide of ethyl was used in 2700 instances, as compared with 2000 instances the previous year. Reviewing the mortality from various anæsthetics from 1890 to 1897, Gurlt gives the comparative death-rate as follows:—

Chloroform	1 in 2039 administrations.
Ether	1 „ 5090 „
Billroth's mixture (chloroform, ether, and alcohol) ...	1 „ 3807 „
Bromethyl	1 „ 5223 „
Ether and chloroform	1 „ 7594 „
Pental	1 „ 213 „

At the time of the report pental appeared to have been completely discarded. The accounts given of bromide of ethyl by various observers show the *necessity for caution in* regard to several points, such as the purity of the drug, the dose and mode of administration, and the cases suitable.

Care must also be taken not to confound it with bromide of ethylen.

In regard to purity the most important point is the liability of the drug to undergo decomposition through exposure to light or air. It appears, also, that in the presence of a flame the vapour is decomposed, the excessively irritating vapours of free bromine being liberated. Impurities are apt to be present in the commercial article. From Dr. Kelly's excellent paper on Bromide of Ethyl Anæsthesia in the *British Medical Journal* of August 30th, 1902, p. 588, I give a passage quoted from Mr. J. P. Gilmour: "During the past three years I have examined 50 specimens of bromide of ethyl (bromethane) for Dr. A. B. Kelly, with the following results: 30 samples (60 per cent.) were utterly unfit for anæsthetic purposes owing to the presence of impurities due either to contamination in the process of manufacture or to decomposition by reason of age, presence of moisture, or exposure to light. Of the 50 specimens examined, 25 (50 per cent.) contained free hydrobromic acid; 2 (4 per cent.) free bromine; 20 (40 per cent.) had an odour of garlic due to the presence of phosphoretted hydrogen; 40 (80 per cent.) showed the presence of amyl and ethylene compounds; and 10 (20 per cent.) contained sulphur compounds." Dr. Kelly adds that Messrs. Duncan and Flockhart are now able to supply an absolutely pure preparation.

Pure bromide of ethyl is a colourless liquid with an ethereal odour, free from garlic-like smell. Its specific gravity is from 1445 to 1450 and its boiling point is from 100·4° to 104° F. In Martindale's "Extra-Pharmacopœia" the specific gravity is erroneously given as 1419 and the boiling point as 105° F. The garlic-like smell of some impure specimens, which Mr. Gilmour ascribes to phosphoretted hydrogen, is said by Loebisch in Eulenburg's "Real-Encyclopädie" to be due to ethyl sulphide. To avoid confusion some chemically related bodies may be placed in comparison: Bromide of ethyl, C_2H_5Br; bromide of ethylen, $C_2H_4Br_2$; bromide of methyl, CH_3Br; and bromoform, $CHBr_3$. Bromide of ethylen and bromide of methyl are highly toxic when inhaled. Bromide of ethylen administered in mistake for bromide of ethyl is responsible for at least three deaths. Bromide of ethyl, known variously as bromethyl or ether bromatus, should be sent out by the manufacturer in hermetically sealed brown bottles, each containing only enough for a single administration and if any is left over it should not be used. The amount to be used at a single administration is now generally placed at from 10 to 30 grammes or by measure from two to six fluid drachms. 15 grammes measure exactly 10·5 cubic centimetres, or roughly three fluid drachms. More than one warning, however, has been given that 30 grammes (six fluid drachms) is too large a dose and may occasionally give rise to unpleasant symptoms, such as collapse and cyanosis, and that from 10 to 15 grammes is the largest amount that is needful or advisable. Most writers agree that prolonged anæsthesia by means of bromethyl is to be avoided and that if necessary the anæsthesia is to be continued with ether or chloroform.

The usual mode of giving bromide of ethyl is by means of a mask covered with impermeable cloth The mask should fit closely so as to exclude the air. Most authorities recommend that the entire amount to be administered should be poured at once on the mask and given at one dose. When the raised arm falls the patient is ready for any short operation. The inhalation is discontinued as soon as the patient is anæsthetised. This usually occurs within from half a minute to a minute and the patient wakes up in from one to three minutes. The face flushes moderately but the colour is not otherwise affected. The pulse, as a rule, is unaltered or slightly quickened. According to Silk the tension is much lowered. If anæsthesia lasting more than two or three minutes is required the bromide of ethyl mask is withdrawn the moment narcosis is established and the ether mask is immediately substituted. The bromide of ethyl anæsthesia then passes rapidly into ether anæsthesia without any struggling stage. Amongst the cases that are unsuitable for bromide of ethyl anæsthesia are very young children, very weak and anæmic persons, the subjects of Bright's disease or of fatty or otherwise degenerated heart, and alcoholic patients. Alcoholics are apt to become excited and do not readily go "under." As to vomiting there is great discrepancy, its occurrence varying in the statistics of different observers from 1 in 400 to 15 per cent. and even to 66 per cent. Dr. Kelly, who has the highest vomiting record, ascribes this result partly to the tender age of the majority of the patients; partly to the fact that a very large proportion of his operations were for the removal of adenoids or tonsils, involving some bleeding into the throat or mouth; and partly to the disregard in dispensary practice of injunctions as to abstinence from food before operation. Sickness, when it occurs, is most usually after the anæsthesia is over.

Another drawback of bromide of ethyl anæsthesia is that the muscles do not usually become relaxed. For this reason in operations on the mouth a gag is inserted before the operation is begun. A period of excitement, sometimes violent, has occasionally been noted after the patient wakes. Hankel in 1897 had collected 21 cases of death. Three of these occurred in from 21 to 30 hours and one seven days after the anæsthesia. In two or three other cases transien fainting attacks or collapse appeared some time after the operation. More than a third of these deaths were due t causes that would be avoided nowadays, such as excessiv doses (60, 130, and 180 grammes), prolonged administration impure or decomposed bromide of ethyl, or fatty heart Respecting the remaining cases I have not sufficient information to form an opinion. In spite of its drawbacks pur bromide of ethyl in proper doses properly administered t suitable cases appears to be at least as safe as ether.

Davos Platz.

ON THE DETECTION OF LEAD IN URIN AND POST-MORTEM SPECIMENS.

By J. W. MELLOR, D.Sc.,

AND

FRANK SHUFFLEBOTHAM, M.A., M.B., B.C. Cantab

The detection of mineral poisons in organic matter is i many cases complicated by the fact that the metal is s intimately associated with the organic matter as to resi the action of the regular solvents. The organic matter mu in consequence be first broken up in order that the met may be extracted by the proper solvent. Boucher[1] foun that the lead was retained by organic matter so tenaciousl that mere carbonisation of the organic matter was not sufficient. The lead can only be extracted by the solvent whe the carbon is completely burnt to ash. There are tw objections to this incineration. 1. It is extremely difficu to oxidise all the carbon because the inorganic salts fuse an spread over the surface of the carbon protecting the latt from the oxygen of the air. 2. The high temperature nece sary for the oxidation of the carbon is sufficient to volatili some of the lead. This renders the method untrustworth when dealing with small quantities of the metal. Freseniu and von Babo[2] oxidised the organic matter by boiling with mixture of potassium chlorate and hydrochloric acid. Hydr chloric acid is not a good solvent for lead. It is necessar to filter the solution while hot in order to prevent th deposition of lead chloride on the filter. This metho is said to give good results and the amount of lead ma be determined by the electrolytic process of Lehmann We have sought for lead in the kidney of Case 1 (the not on which are given below) by the potassium chlorate an hydrochloric acid method, but the results were not ver satisfactory. The process also occupied a considerab amount of time and required a good deal of attentio Pouchet[4] proposed to destroy the organic matter b fusion with potassium hydrogen sulphate. Nikitin an Igefesky[1] treated the material with ten times its weight concentrated sulphuric acid. From two to five days' boilin are said to be necessary for the complete destruction of th organic matter. Villiers[4] employed a mixture of nitric aci and potassium permanganate. This, when followed by treatment with a mixture of nitric and sulphuric acid, wa found by Denigès[4] to give very good results. Orfila[5] use ordinary nitric acid, but that is not sufficient for the di solution of the lead. We found that a simple treatment o the organic matter with fuming nitric acid, as indicate below, gave very satisfactory results.

---

[1] Boucher: Annales de Hygiène, vol. xli.

[2] Fresenius and von Babo: Liebig's Annalen, vol. xlix., p. 287, 1844.

[3] Lehmann: Zeitschrift fur Physiologische Chemie, vol vi., p. 1.

[4] Denigès: Bulletin de la Société Chimique de Paris, Series vol. xxv., No. 22.

[5] Orfila: Journal de Chimie Médicale, p. 339, 1842.

Kidney.—A piece of kidney of 20 cubic centimetres capacity was cut up into about a dozen pieces. These were placed in an evaporating basin and about 50 cubic centimetres of fuming nitric acid were poured into the dish. Dense brown fumes of nitrogen oxides were evolved. When the action had subsided (in from two to three minutes) the dish was placed upon a sheet of asbestos and allowed to simmer over the Bunsen flame for about an hour. If the frothing appears in danger of running over the sides of the dish *stirring* with a glass rod or removal of the flame for a short time may be necessary. 25 cubic centimetres of the fuming acid were added at intervals of a quarter of an hour and this process was repeated three times. The destruction of the organic matter was so complete that the whole of the piece of kidney passed into complete solution. The solution was then evaporated down to a few cubic centimetres, neutralised with caustic soda, filtered, and treated with hydrogen sulphide. A dark-brown precipitate of lead sulphide was obtained. With potassium chromate a yellow precipitate of lead chromate was obtained with the same specimen of kidney which gave a negative result with the $KClO_3$-HCl method of destroying the organic matter. Our reagents, dishes, &c., were then examined with a blank test, but we found no lead.

Urine.—We then sought the presence of lead in the urine of Cases 2, 3, and 4 (see below). Half a gallon of urine was evaporated down to dryness in each of two basins In one basin the residue was heated until it was charred. Both residues were then treated separately with fuming nitric acid as just described. The uncharred residue passed into solution and on cooling deposited a white sediment. The mother liquor was neutralised and tested in the usual way. A brown precipitate of lead sulphide was obtained in Case 2 while in Case 3 a well-marked black precipitate was obtained The urine of Case 4 gave a negative result. The charred residue did not pass completely into solution and the tests for lead were not so well defined as when the residue was uncharred. This shows that care must be taken to prevent charring of the residue during evaporation.

CASE 1.—The patient was a man, aged 35 years. He had worked in lead processes all his life and had been a glost placer for 15 years. He was incapacitated from work for the ten months previous to his death. He first showed symptoms of plumbism two and a half years previous to his fatal illness, when he was affected with an illness similar to a violent bilious attack. He vomited and suffered from pains in the head. The pains recurred once a month and afterwards they were more frequent. Dr. R. H. Read of Hanley attended the patient during the last illness, the duration of which was a fortnight, and he found him suffering from symptoms of irritant poisoning affecting his nervous and digestive systems. The patient gradually became worse. The lower portion of the bowel became absolutely paralysed, and epileptiform convulsions supervened. Hiccough was a marked symptom. The cerebro-spinal canal was punctured in the lumbar region and 15 cubic centimetres of fluid were withdrawn with a view of relieving the convulsions, but it was without avail. At the post-mortem examination it was found that there was a marked blue line on the gums and there was evidence of chronic meningitis and of sclerosis of the brain tissue itself. There were ecchymoses in the mucous membrane of the stomach The middle part of the bowel was distended with gas and the lower portion was very much contracted and filled with scybala. Both kidneys were granular, the left markedly so. [illegible] was healthy. There was [illegible] th lungs. The liver, hear[illegible] y.

CASE 2.—The patient was a man, aged 24 years. He had been a house painter for the last 11 years. He had suffered from obscure symptoms of pains in the stomach, lassitude, and headache. He was clean in his habits but drank more alcohol than was good for him. He had a marked blue line on the gums. There was no albuminuria and no constipation. Since he changed his occupation to paper-hanging he has been quite well.

CASE 3.—The patient was a man, aged 33 years, who had worked in the lead all his life, first in the sagger house and afterwards as a glost placer. He suffered from paralysis of the arms and colic, and was away from work for 11 days. He was pronouncedly anæmic and the blue line on the gums was well shown. There was albuminuria and the optic disc was normal.

CASE 4.—The patient was a man, aged 66 years. He had been a glost placer for 40 years, but for the last seven years had been a caretaker. While working with lead he suffered from two attacks of colic. He also had several attacks of muscular rheumatism and for a great number of years had had chronic bronchitis. The blue line on the gums was *still* seen, although he had been away from the lead so long.

Conclusions.—We consider the fuming nitric acid test as employed by us to be superior to the tests we have mentioned at the beginning of this paper on account of its greater delicacy, easy manipulation, and the short time required to carry out the test. It is obvious that this process can be easily adapted to the usual methods for quantitative determinations.

We thank the Headmaster of the Newcastle-under-Lyme High School for placing the resources of the chemical laboratory at our disposal.

Newcastle-under-Lyme.

A CASE OF UMBILICAL CALCULUS.

BY J. R. HARPER, M.R.C.S. ENG., L.R.C.P. LOND.,

HONORARY SURGEON, NORTH DEVON INFIRMARY;

With a Note on its Histology by

C. G. SELIGMANN, M.B., M.R.C.P. LOND.

THE patient was a man, aged 46 years, who had been a soldier. When in Egypt in 1882 he had a severe attack of cholera; other than that he had always enjoyed good health. In the first week of July, 1902, he was worried with a slight purulent discharge from the umbilicus, around the circumference of which for about a quarter of an inch was a moist weeping eczema. He complained of no pain, only of the discomfort which was occasioned by his shirt sticking to his abdomen. There was no offensive smell from the discharge. A simple local application relieved him and for a few days he was quite comfortable. About ten days after, however, in lifting a cask, he seems to have strained himself and to have hurt his left side. At first he did not pay much attention to it, but finding that he was getting worse he again presented himself for treatment. It was then found that he had a good deal of tenderness and muscular rigidity in the left iliac region. He was ordered home to bed and hot fomentations were applied. In a few days it became apparent that an abscess was forming in the abdominal wall which was draining through the umbilicus, the discharge from which was most offensive. The man became acutely ill, rapidly losing flesh and being worn out with the pain and the discharge from the navel.

On July 26th two incisions were made into the abscess, [illegible] from the umbilicus to Poupart's ligament [illegible] ately to the [illegible] other just [illegible] ge quantity of very offensive pus was evacuated and the abscess cavity was found to extend to Poupart's ligament on the left side. At the bottom of the cavity behind the rectus muscle a stone was found of about the size of a walnut. This was forwarded to Dr. C. G. Seligmann whose report is given below. By August 25th the wounds were well healed and the patient had much improved in health. The patient seems to have suffered no pain or inconvenience whatever until suppuration commenced. He is an intelligent man and says that he can only account for it by assuming that it must have arisen from neglect while on active service, when he was several weeks without having a chance of thoroughly washing himself or of changing his clothes.

The literature of umbilical calculus is so scanty that it seems worth while recording this case. The text-books of surgery make no mention of it; the only references are apparently two cases—one published by Mr. S. G. Shattock, which is referred to below, and another recorded by Mr. Dean in the "Anomalies and Curiosities of Medicine" (Gould and Pyle)

Report by Dr. SELIGMANN.—The specimens received consist of two irregular masses of a brownish colour. The larger mass is roughly conical with a truncated apex and measures about 14 millimetres in its chief diameter and weighs 426 milligrammes. The smaller mass, which weighs 20 milligrammes, is more nearly spherical and about 8 millimetres in diameter. Besides these there is a thin irregularly rectangular flattened mass of a shining white colour, roughly 12 millimetres long by 7 millimetres broad, with a soft smooth surface that was almost lustrous when first examined. On exposure this has become somewhat shrunken and in parts tinged with brown. The smell of all these specimens is extremely offensive and almost fæcal in character. Both the brownish masses were soft, pitting readily on pressure with the finger-nail and being easily crushed between the fingers. On examining a portion of the interior of the smaller mass microscopically it was found to consist of short, rather fine hairs for the most part of a brownish colour, a few badly formed cholesterine plates, a number of masses consisting of broken and compressed epithelial cells, and some fragments of woody vegetable tissue which it can be definitely asserted is derived from a conifer, the whole being mixed with and held together by a more or less granular ground substance. The flattened mass above referred to consisted entirely of a few cholesterine plates and many old, badly preserved epithelial squamæ, deformed by mutual pressure and cemented together by a small quantity of an apparently structureless material. The flat shining surface of this, which could be picked off with a finely pointed forceps in irregular layers (as it is sometimes possible to pick a wafer to pieces), suggests stratification of the squamæ of which it is composed and that these might originally have represented the peripheral part of the cavity in which the larger masses formed.

Of the nature of the specimens there can be little doubt. They are excellent examples of the somewhat rare formations known as umbilical calculi which consist of deformed and wrinkled epithelial scales often intermixed with fine hairs. The presence of woody tissue in the midst of one of the masses is interesting, but other foreign bodies have been found before in this position; thus Mr. Shattock has described a case in which the nucleus consisted of a mass of cotton fibre. The same authority has in the following few lines summed up the natural history of such concretions:[1] "These calculi ...... have plainly arisen as accumulations of the epidermis and hair shed into the umbilical depression, the orifice of which had become obstructed, possibly from a local inflammation such as is at times associated with eczema of the part."

A CASE OF SPLENIC ANÆMIA.

By GEORGE PEACOCKE, M.D. DUB., F.R.C.P. IREL.,
ASSISTANT PHYSICIAN, ADELAIDE HOSPITAL, DUBLIN;
THOMAS E. GORDON, M.B. DUB., F.R.C.S. IREL.,
SURGEON, ADELAIDE HOSPITAL;
AND
J. ALFRED SCOTT, M.D. DUB., F.R.C.S. IREL.,
PATHOLOGIST, ADELAIDE HOSPITAL.

ON June 8th, 1902, a man, aged 45 years, was admitted into the Adelaide Hospital, under the care of one of us (Dr. G. Peacocke). His family history revealed nothing of importance and until the commencement of his present trouble he had been a perfectly healthy man. The history of his illness is very brief. He does not remember when he first felt any symptoms, but thinks that for the six months previously to admission to hospital he had been gradually getting weaker, less able for his work, and easily made breathless by exertion. He also felt what he described as a "gurgling pain" in the left side and at intervals had rather sharp paroxysmal pain in the same side. His abdomen, too, had slowly been increasing in size. So little did his symptoms trouble him that it was not until about three weeks before admission to hospital that he consulted a medical man, who on discovering a tumour in his abdomen advised him to go to Dublin without delay.

His appearance when seen by Dr. Peacocke was not suggestive of any serious mischief. He was a well-nourished man; the skin of his face, bronzed by constant exposure, perhaps hid the anæmia which was present. His pulse was regular, of good volume, and 84 per minute. The temperature was normal, the heart sounds were healthy, and the lungs were normal. On examining the abdomen a large prominent tumour was seen occupying almost the entire left side. On palpation it was smooth on the surface, but a distinct friction rub could be felt. The lower end was rounded and extended to within two fingers'-breadth of the crest of the ilium; the upper end was lost under the costal arch. A distinct notch was palpable on the anterior edge close to the umbilicus. The tumour did not move on respiration nor was it tender to the touch. Percussion gave a uniformly dull note and the friction rub so easily felt was very distinct on auscultation. The urine was acid (specific gravity 1024) and contained a trace of albumin. A blood count made on June 11th gave the following result: red blood corpuscles, 4,250,000 per cubic millimetre; hæmoglobin, 60 per cent.; and leucocytes, 1 in 1000 red blood corpuscles. A differential enumeration of the latter showed eosinophiles, 4 per cent.; polymorpho-nuclear leucocytes, 39 per cent.; mononuclear leucocytes, 4 per cent.; lymphocytes, 53 per cent. As a result of this examination it was evident that the case was not one of spleno-medullary leucocythæmia. Other causes of splenic enlargement—i.e., syphilis, malaria, cirrhosis of the liver, malignant disease and tuberculosis—were easily excluded and Dr. Peacock therefore came to the conclusion that the case was one o splenic anæmia. The only treatment, according to th literature of the subject, that afforded any hope of succes was splenectomy. Dr. Peacocke therefore called in th assistance of his surgical colleague, Mr. T. E. Gordon.

Note by MR. GORDON.—On June 27th, 1902, I opened thi patient's abdomen by a long incision through the left rectu muscle. I found the enormous spleen free from adhesion on its outer surface, and the few omental attachments at th lower end were easily separated. The division of the spleni ligaments proved both difficult and dangerous. There wa nothing of the nature of a pedicle, for the reflection at th hilum measured fully six inches vertically. The real diff culty, however, was due not to this but to the fact that could not turn over the spleen towards the right in orde to bring into view the lieno-renal ligament with the spleni vessels which lie in it. This was owing to posterior adhesions and to the great bulk of the spleen itself. It was the necessary to pass the needle from in front and unfortunately in doing so I injured a large branch of the spleni vein. The resulting hæmorrhage was appalling, and had no Mr. F. T. Heuston, who was assisting me, promptly compressed the vessels the patient would have died. This compression Mr. Heuston maintained until I had divided th remaining attachments between clamps and removed th spleen. I passed separate ligatures round each clamp an a silk ligature including all. There remained some bleedin points high up in the under surface of the diaphragm. A time was a matter of much importance, for the patient wa much collapsed, I thought it best to pack the cavity wit gauze and to close the greater part of the abdominal woun as quickly as possible. I introduced a large drainage tub through a stab puncture in the loin.

I think I have stated all of importance relative to th operation and the after-treatment does not require detaile description. The gauze plugs were a source of some anxiety I began by removing them very gradually—one or tw strands each day—but in the end I was obliged to get o more rapidly as suppuration had occurred about them. Th patient left hospital on August 16th and on the 24th he too a walk of ten miles. Had it not been for the unfortunat wounding of the splenic vein the removal of this enormou spleen would not have been difficult.

Note by DR. J. A. SCOTT.—The spleen when removed showe a general enlargement with much the same shape as whe normal. When laid on a table on the convex side it becam slightly flattened and measured 12 inches long, eight inche wide, and four inches at its thickest part. It weighed eigh pounds two ounces. The capsule was very considerabl thickened in a few places on the surface. In the other part it did not appear to the naked eye to be abnormal. Sectio showed it internally to be fairly firm and much paler tha normal. Some dark marks or lines which gave a marble surface to the section was all that could be seen of th spleen pulp. The lighter portions were round spots almos regularly one millimetre in diameter. These covered th whole surface between the lines of the spleen pulp, and t the naked eye or with a pocket lens appeared to be th Malpighian corpuscles.

Microscopical examination showed that the Malpighia corpuscles were enlarged until they touched each other. Th spleen pulp was absent. Special staining showed a number of red corpuscles at the junction of, and diffusing slightly into, the edge of the enlarged Malpighian corpuscles, these being the cause of the dark line visible to the naked eye. Careful examination showed that there was no increase of the trabeculæ or the reticular connective tissue, the only connective tissue increase being found in the patches of old perisplenitis.

---

[1] S. G. Shattock: Some Anatomical Rarities, Transactions of the Pathological Society, vol. li., 1900, p. 282.

The general appearance suggested lymphadĕnoma rather than any other form of splenic enlargement. This view is still more probable when the condition of the blood before and after the operation is taken into account. On June 11th, a few days after the admission to hospital, an examination was made as already described. The general estimation was repeated on the 23rd and showed a further increase in the intensity of the anæmia but was otherwise similar. The red blood corpuscles numbered 3,500,000 per cubic millimetre; hæmoglobin was 50 per cent., and the white blood corpuscles were 1 in 1000 red. These showed a marked decrease in the total white blood corpuscles and specifically a greater fall in the leucocytes than the lymphocytes, a condition much more like Hodgkin's disease than other diseases involving the spleen.

Subsequently to the removal of the spleen on June 27th two further examinations were made during the patient's stay in hospital. On July 12th there were found red blood corpuscles, 3,750,000 per cubic millimetre; hæmoglobin, 62 per cent.; and white blood corpuscles, 6300 per cubic millimetre, or 1 in 600 red. On August 12th a blood-count gave the following results: Red blood corpuscles, 4,400,000 per cubic millimetre; hæmoglobin, 75 per cent.; and white blood corpuscles, 6300 per cubic millimetre, or 1 in 600 red. This showed a marked improvement in the number of white blood corpuscles and suggested at least that the disease was localised in the spleen and that the former excess of lymphocytes came from the increased lymphosed tissue in that organ. During a short visit to Dublin on Jan. 10th, 1903, another count was made, with the following result: Red blood corpuscles, 4,400,000 per cubic millimetre; hæmoglobin, 85 per cent.; white blood corpuscles, 6600 per cubic millimetre, or 1 in 666 red; eosinophiles, 12 per cent.; polynuclear leucocytes, 61 per cent.; mononuclear leucocytes, 6 per cent.; and lymphocytes, 21 per cent. The lymphocytes in this latter count had a much larger amount of protoplasm than usual, and merged into the large mononuclear varieties, all connexion varieties being seen, rendering the counting rather difficult. The increase of the eosinophilous cells was the only noticeable departure from normal.

The following short extract from a letter received from the patient on Dec. 22nd, 1902, describes his general condition six months after the operation: "Since I left hospital I cannot say I have had an hour's sickness. I am up every morning at six o'clock and do all the knocking about and marketing of the farm as well as ever I did. I am ploughing lea land for the last nine or ten days and don't find it doing me any harm. The discharge is now stopped nearly a month, and I have also increased in weight over one and a half stones since I came home." But in March, 1903, the patient wrote saying that he was troubled with indigestion, had a poor appetite, and a burning pain in the stomach after food. He also stated that there was no enlargement of any glands and that the wound was quite healed and gave no trouble. In June of this year I received information from his medical man that our patient had died, the cause of death not being mentioned.

A CASE OF RUPTURE OF THE ŒSOPHAGUS FROM AN ACCIDENT.

BY T. R. C. WHIPHAM, M.B., B.CH. OXON.,
M.R.C.P. LOND.,
PHYSICIAN TO OUT-PATIENTS TO THE EVELINA HOSPITAL FOR CHILDREN;
ASSISTANT CURATOR OF THE MUSEUM, ST. GEORGE'S HOSPITAL.

INSTANCES of rupture of the œsophagus due to sudden increase of the internal pressure from the act of vomiting are but seldom met with—indeed, such an occurrence has been described as one of the rarest of accidents. So infrequent is it that since the publication of the papers on this subject by Bowles and Turner[1] and by McWeeney[2] in 1900, I have been unable to find any record of such a case in the literature. The following case, therefore, which was brought into St. George's Hospital on April 1st, 1903, deserves to be recorded, the rupture in this instance being, as will be seen, due to an accident which caused a sudden increase of pressure analogous to the act of vomiting.

The patient, a man, aged 27 years, was found unconscious in the street by the police, having been thrown from a horse and smelling strongly of alcohol. On admission he was deeply comatose and breathing stertorously. On the right side of the forehead was a jagged wound two inches long, at the bottom of which a depressed fracture could be felt. There was extensive ecchymosis of the right orbit pushing the eyeball forwards and there was bleeding from the nose. The right pupil was widely dilated and the left was contracted. The left arm was slightly stiff, but the limbs on the right side were flaccid. Soon after admission Mr. Herbert Allingham operated, turning back a large flap and exposing an extensive comminuted fracture of the frontal and right temporal bones. The dura mater was lacerated and some of the brain substance was protruding. The depressed bone was removed and much blood which oozed up from the base of the brain was evacuated. Five hours later the patient was still deeply comatose and sweating profusely. The breathing was noisy but not stertorous and the pupils still preserved the same inequality. Altered blood and food stuff had been vomited several times. Eight hours after the operation the patient died from respiratory failure, having become very cyanosed during the last ten minutes of life. The temperature shortly before death was 106 6° F.

At the necropsy, which I made 24 hours later, the body being well frozen, there were in addition to the operation wound extensive hæmorrhages into the lids of both eyes with œdema of the conjunctivæ and slight abrasions on the left side of the face, but no external signs of injury elsewhere. In the upper part of the chest wall in front "surgical" emphysema was present in a moderate degree, but it did not extend up on to the face. The left pleura contained about a pint of fluid and semi-solid masses, evidently food, which had a sour odour of beer, and the membrane itself had lost its lustre; the right pleura was normal. The lungs were congested and œdematous and at the left base were small superficial hæmorrhages under the pleura. In the heart, which was slightly dilated, there was a patch of ecchymosis in the upper part of the interventricular septum on the left side. At the lower end of the œsophagus just above the diaphragm was a longitudinal rupture of the wall on its posterior aspect, one and a half inches long, which communicated directly with the left pleural cavity. There was no sign of a previous lesion at the site of rupture, which was obviously of recent occurrence. The upper part of the œsophagus contained some food. The rest of the alimentary tract was normal. The skull was found to be extensively fractured and there was much subarachnoid hæmorrhage over the cerebral hemispheres and the cerebellum. The base of the brain was bruised and lacerated, but there was no hæmorrhage into its substance. Examination of the other viscera revealed no noteworthy changes.

In one respect this case appears unique, for in it alone was the lesion the direct result of an accident—that is to say, an accident not causing a perforation from without or due to the swallowing of a foreign body. The way in which the rupture here was brought about appears to have been as follows. The patient was evidently thrown from his horse and pitched on his forehead, fracturing his skull. The neck was then either sharply flexed by the after-coming trunk and this accompanied perhaps by a sudden muscular contraction of the pharynx caused an obstruction to the forcible ejection or expression of food from the stomach and so gave rise to the rupture; or, on the other hand, it may have been over-extended by the man turning a half somersault while his forehead remained in contact with the ground, in which case the œsophagus would have been stretched over the cervical vertebræ with a similar result. The former seems the more probable explanation as the rupture was on the posterior surface of the gullet.

Several of the cases reported as those of rupture of a healthy œsophagus have been objected to by various authors on the ground that the rupture in such cases was the result of a digestive process and of post-mortem occurrence, or else that there was a previous lesion at its site. There are probably some 23 undoubted cases on record, though there are 30 besides my own which have passed the scrutiny of at least one authority. Nineteen of these are to be found in Bowles and Turner's list; eight are epitomised in the paper by McWeeney, who also includes nine of those mentioned by Bowles and Turner; one is briefly described by Bryant in the discussion on the latter paper; while two additional ones are included in Mackenzie's tables.[3] Summarising these cases we find that the accident occurs much more frequently in males, 24 patients being of that sex as compared with four females; in three the sex is not stated. The majority were of middle age, 17 being over 30 and nine below, while in five the age is not recorded. Alcohol seems to be a predisposing factor, since in 11 cases there was a history of drinking and two others were presumably alcoholic to a more or less degree. In nine a history of alcohol can be negatived, while in a similar number no mention of the habit is made. In all these cases the lesion was apparently brought about by the act of vomiting, though in two the exact cause is somewhat indefinitely stated. In three the vomiting was initiated by the impaction of food in the œsophagus, while in the case here recorded the ejection of the stomach contents was probably due to mechanical pressure on a loaded viscus as a result of the fall. In only one of the cases recorded has rupture of the œsophagus been the result of violence and in that instance it was only the indirect result, being brought about in a child by vomiting consequent on a fracture of the skull. In one of the records the situation and direction of the rupture are not stated, but in all the others it occurred in the lower third of the œsophagus, generally just above the diaphragm, and in some instances extending into the cardia, and in all except three was longitudinal in direction. In four the lesion was on the left side, in one on the anterior wall, while five were posterior, of which one was rather to the right and two were rather to the left. In 21 the aspect on which the lesion occurred is not given. The situation of the rupture in the lower third is probably accounted for by the fact that this portion of the œsophagus is covered only by involuntary muscle fibres, and experiments by Mackenzie, Bowles and Turner, and Brosch,[4] who increased the pressure from within by means of either gases or fluids, proved that this was the weakest part, the rupture thus obtained being always longitudinal in direction and generally on the posterior surface. These facts give point to Turner's remark that in cases where a rupture can be diagnosed operative measures should be undertaken. Emphysema of the chest wall or of the neck and face was present in 16 cases and absent in three, while in 12 no mention is made of this phenomenon. Pneumothorax likewise was found in 16 instances, was absent in three, and not mentioned in 12, and was present in 11 of the cases in which emphysema occurred. All the cases were uniformly fatal, 22 dying within 24 hours. Two survived for as long as seven and a half days; in three the duration of life is not mentioned.

---

[1] Bowles and Turner: Transactions of the Royal Medical and Chirurgical Society 1900, p. 241.

[2] McWeeney: THE LANCET, July 21st, 1900, p. 158.

The symptoms accompanying the rupture were not directly observable in the case under notice, as the patient was in a comatose condition on admission to the hospital and a rupture of the œsophagus was not suspected during life. The etiology of such a rupture is a somewhat moot point. The chief views that have been put forward are those of Zenker and Ziemssen who attribute the possibility of such an accident to an intravital œsophago-malacia due to the regurgitation of acid and peptic matters from the stomach and retention of the same in the œsophagus with accompanying cessation or weakening of the circulation, and of McWeeney who maintains that a softening of the wall occurs as the result partly of intravital digestion from retention of peptic matters and partly of inflammatory changes, as evidenced by his case in which the digestive process was accounted for by thrombosis of the vessels. Brosch[5] as the result of his investigations states that a thinning of the walls may occur without any morbid lesion, though predisposing causes are to be found in such processes as the mechanical irritation of foreign bodies, ulceration, scarring, and endarteritis obliterans leading to necrosis. In the case here recorded there was no macroscopic evidence of any previous change and it seems possible that if such a lesion can be produced experimentally in the healthy œsophagus by increasing the internal pressure such a result can be accounted for in the present instance by the great increase of abdominal pressure which is likely to have occurred in so severe an accident.

To Mr. Herbert Allingham my thanks are due for permission to make use of this case.

The specimen will shortly be placed in the St. George's Hospital museum, No. 5331 [Series IX., 27A].

Grosvenor-street, W.

---

[3] Mackenzie: Diseases of the Throat and Nose, vol. ii.

[4] Brosch: Virchow's Archiv, Band clxii., 1900, p. 114.

[5] Loc. cit.

THE TREATMENT OF CANCER AND OTHER FORMS OF MALIGNANT DISEASE BY ELECTRIC OSMOSE.

By CLARENCE A. J. WRIGHT, F.R.C.S. EDIN.,
F.F.P.S. GLASG., &c.

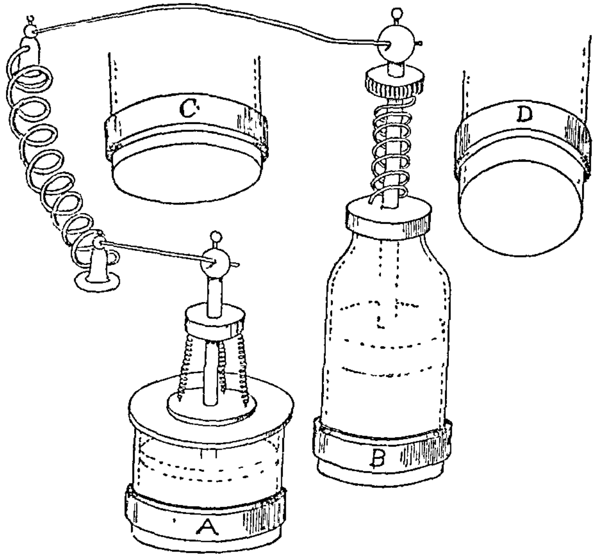
THE increase of cancer and the interest that attaches to all measures tending towards its cure must be my apology for bringing before the profession some experimental observations, crude and undigested though they be, on the results to be obtained in the treatment of the disease by electric osmose. In order that the method employed may be more easily understood I claim the indulgence of the reader for a very necessary digression, made to discuss some points bearing upon the subject. Among the more characteristic properties of high-frequency currents are those described as "the phenomena of electric osmose." To these it is necessary, in the first place, to allude.

The phenomena of electric osmose.—It has long been known that an electric current in passing through the liquid contained in a small vertical tube into which two platinum wires have been fused causes the level at which the liquid stands to be raised, when it moves in an upward direction. This phenomenon has been attributed to a mechanical current whose direction corresponds with that of the electric flux and whose velocity depends on its intensity, while the height to which the liquid can be raised is proportionate to the cross-section of the containing tube. As like effects are produced even when the tube is placed in a tank through which iced water is kept circulating, it is evident that the phenomenon can in no wise be said to depend upon the heat engendered by the passage of the current. Reinold and Rücker have noticed a somewhat similar phenomenon. When an upward current is passed through a perpendicular soap film it greatly retards, if it does not entirely arrest, the thinning of the film. Porrett observed that when a strong current was led into the liquid contained in a Daniel apparatus—a U-shaped container fitted with a porous diaphragm between the electrodes—a mechanical current was established which, by forcing a part of the fluid through the central partition, caused it to attain a higher level on the kathodic side of the diaphragm than on the anodic side. The degree to which this phenomenon, which is known as "electric endosmosis," is manifest depends upon the conductivity of the fluid and the specific dialytic[1] capacity of the diaphragm for the liquid. With fluids that are bad conductors the phenomenon is more easily demonstrable than with those of good conductive capacity; at the same time it must be remembered that one that readily saturates the diaphragm is most readily passed through its pores. Closely allied to the preceding phenomenon is that known as "electric distillation." Although Baccaria had previously noticed that an electrified fluid evaporates more readily than an unelectrified one it was Gernez who first demonstrated this apparent distillation. He employed a bent glass-tube connecting two small glass globes into which the platinum electrodes had been fused. When liquid was introduced so that it stood at the same level in both globes and an electric current was passed through it, it was noticed that the fluid passed over from the anodic container to that connected with the kathode. This phenomenon cannot be attributed to any difference in temperature or extent of surface exposed, but rather to a slow creeping of the liquid along the inner surface of the connecting tube, which gives rise to a sort of electro-capillary syphonage. Quincke, on the other hand, discovered that an electric current is set up when a liquid is forced by pressure through a porous diaphragm. The electro-motive force of the current so induced is *proportionate to the pressure and to the dialytic affinity of the diaphragm.* "If Porrett's experiments," says Reus, "be repeated with a fluid which is kept circulating through the porous diaphragm of a Daniel's apparatus by pressure (that in one arm being subjected to a positive pressure by means of an air pump, while a negative pressure is produced in the other by creating a partial vacuum) the rapidity with which the fluid passes through will be found to depend on the direction of the electric flux. It is increased when the direction of the electric flux and that of the current coincide and is diminished when they are opposed to each other. If instead of a simple fluid a standardised solution of two or more salts be employed it is found that the relative proportion of each in the dialysed fluid varies considerably from that of the standard solution, the amount present depending on (*a*) the specific diffusibility of the salt, (*b*) the degree of its saturation in the standard solution, (*c*) the nature of the diaphragm, and (*d*) the duration of the electric flux. When two diaphragms are employed and the direction of the current periodically reversed the pressure of the liquid in the central compartment rises and causes the diaphragm to bulge outwards. Quantitative analysis of the fluids between and on either side of the diaphragms then shows that the percentage of the different salts present in the samples taken from each of the three compartments differ not only among themselves but also from that in the standard solution." This peculiar property of alternating currents is a point of great economical interest, as it affords a ready way of separating alkaloids and other active principles, both animal and vegetable. It also furnishes a clue to the method to be employed in obtaining gold from sea water, the question largely turning on the use of suitable diaphragms. More closely connected with electro-therapy is the explanation it affords of cataphoric phenomena and the movement of ions on the one hand and the resolution under electric treatment of tumours and chronic indurations on the other. It is these peculiar properties of alternating currents that are utilised in the cataphoric treatment of disease by high frequency.

---

[1] Reus explains the specific dialytic capacity of a diaphragm as the affinity it has for the liquid and the facilities it affords for transmission by capillary osmosis. For instance, linen has a greater dialytic capacity for water than either cotton, silk, or wool. Again, when a capillary tube is introduced into different liquids it is noticed in those for which it has a great dialytic affinity that the surface of the liquid is at a higher level peripherally than centrally, as seen in Fig. 1, while the appearance shown in Fig. 2 indicates a smaller dialytic affinity.

Cataphoresis by high frequency.—Of all the methods employed in vibratory electrisation those classed under the head of "stabile bipolar derivation" are the best suited for cataphoric treatment of disease by currents of high frequency. In dealing with the phenomena of electric osmose attention was directed to certain methods by which an electric transference can be effected of substances dissolved in the liquid conveying the current through a series of diaphragms interposed between the electrodes, and the peculiar aptitude of alternating currents for effecting this was especially dwelt upon. An explanation of the method by which this result is produced is afforded us by the experiments of Tommasi and Thomas Tommasina. These show that the transmission of an electric impulse by an electrolytic conductor is accompanied by a transference of substance which manifests itself by the formation of arborescent chains of crystalline deposits between the electrodes. These chains follow the line of force of the electric field. Although it had long been known that the absorption of medicaments by the skin could be increased by electric action,[2] yet it was not till the year 1890 that this method of medication attracted any real attention. The electro-chemical researches of Professor Foveau de Courmelles were the first attempt to treat the subject from a scientific standpoint. His investigations proved that cataphoresis is not simply a question of increased cutaneous absorption but of real penetration and particulate transference in accordance with *certain fixed laws* of the molecules of substance held in solution. These pass into the tissues which appear to act as a series of diaphragms interposed between the electrodes. The best known of these laws are coupled with the names of Faraday and Kohrasuch. According to Leduc the flux of force in electrolytes is made up of a double current of ions, an ascending current of anions passing towards the positive pole and a descending stream of kathions moving in the opposite direction. Leduc has also proved by means of coloured ions—a solution of permanganate of potash—that the medicaments do not merely pass into the subcutaneous areolar tissue, but directly penetrate into glandular organs and other structures more deeply situated. Frankenhaeusar has shown that the amount of medicament absorbed and the depth to which it penetrates have a constant relation, the former to the quantity, the latter to the intensity, of the current employed. He has also found that the anode is



A and B show the cataphoric cups attached to the opposite poles of the solenoid of high frequency. C and D show the diaphragms covering the bottom.

---

[2] [illegible] in 1750 by Pivati, who employed a [illegible]

instrumental in effecting an entrance into the tissues for acids, alkaloids and their salts, and metallic salts (other than those of the fixed alkalies and alkaline earths, which alone enter at the kathode). Cup electrodes are most commonly employed in cataphoresis, although the electric bath has also been used by Apostoli, Laquerriere, and Schnée. Phillips's method has been tried by Reus and found of some service when used in connexion with clay electrodes.

Having so far discussed the methods employed it will be interesting to note how much the reaction produced depends on the medicament introduced and the menstruum used to suspend it. The mineral acids cause a resolution of the skin and tissues, whilst the metallic salts give rise to necrosis. Water has a simple stimulating effect which varies with the intensity of the current employed. Alcohol gives rise to immediate coagulation of the albuminous constituents and causes a subsequent fibrosis. Liquid paraffin, without exerting any specific effect upon the tissues, allows of the ready transference to them of substances dissolved in it. Iodine, salicylate of soda, lithium salts, and pilocarpine produce their own specific reaction. Thus we find that iodine in both aqueous and alcoholic solutions is useful in goitre, tertiary syphilis, tabes and myelitis, and in effecting the resolution of secondary deposits in glandular organs. Salicylate of soda, oil of wintergreen, and Japanese peppermint are of service in arthritism resulting from traumatism, rheumatism, or specific disease; while lecithin, guaiacol, the glycero-phosphates, cinnamic acid, and the cacodylate of soda are beneficial in tuberculosis. It is evident from what has already been said in relation to Porrett's experiments that water, being a better conductor of electricity than either alcohol or liquid paraffin, is less likely to be of service in cataphoresis than the two last named. It requires, therefore, to be stiffened by admixture with either glycerine or alcohol before it is employed. Thus, in a cataphoric application of suprarenal extract as a preliminary[3] to treatment by Finsen's light it was found that glycerine with normal salt solution proved a better menstruum for its suspension than water alone. In my experiments on cancer I employ either a dilute glycero-alcoholature or liquid paraffin emulsion as a vehicle for the salts employed. The chief of these are cinnamate of strontium, glycero-phosphate of lime and strontium, citric acid, iodine, and suprarenal extract. Cinnamate of strontium suspended in three parts of glycerine to five parts of distilled water is the medicament most frequently used and on which great reliance is placed to effect a cure. The glycero-phosphates have proved useful in assisting the casting off of a slough and promoting healing after an application of acid nitrate of bismuth. The citric acid was used for subduing neuralgic pains in the part, either alone or in conjunction with phenazonum. The use of iodine was chiefly confined to reducing the size of indurated glands and promoting absorption, although a strong solution was occasionally used for its escharotic effects on the tissues. It was then dissolved in pure alcohol. The suprarenal extract was employed as a preliminary to treatment at most of the sittings so as to limit absorption and to concentrate the action of the drug on the diseased tissues.

With these observations on the method of treatment pursued I will proceed to place before the reader the results obtained in five cases of cancer in which the treatment was beneficial.

CASE 1. *Paget's disease.*—A married woman, aged 51 years, the mother of seven children, the youngest of whom was 16 years, consulted me on March 19th, 1902, about a lump in her left breast which she first noticed six months previously when bathing. It was then of the size of half a walnut. As it was painless and caused her no inconvenience she took no notice of it till six weeks previously, when she consulted a medical man on account of a slight blood-stained discharge from the nipple. He pronounced the growth to be cancer and advised the removal of the breast. The general condition of the patient was that of a thin nervous woman, rather anæmic, and the subject of obstinate constipation. With the exception of a bilious attack at each menstrual period she had enjoyed good health till lately when she began to lose flesh. Menstruation commenced at 16 years of age and ceased at the age of 43 years. She had always suffered from cracked and tender nipples while nursing her children, but had not noticed any scaly patches on them till the discharge appeared. On examination a hard nodular mass of the size of a penny bun was found in the left mamma beneath the nipple which, being involved in the growth, was retracted and covered with a scaly crust. A similar eruption appeared on the areola which bled on its removal. Apart from this pressure on the mass caused a sanious discharge to exude from the nipple. The pigskin appearance of the overlying skin clearly showed that it was adherent to the subjacent tumour. It was impossible to lift or to roll the mass over the pectoral muscle. The axillary lymphatic glands were enlarged, two being of the size of a small walnut and others of about the size of a hazel-nut. The diagnosis of the case was simple and operation was advised. To this the patient was determined in no wise to submit. When cataphoresis by high frequency was suggested as an experiment she expressed her willingness to undergo the new method of treatment and was given a sitting of ten minutes' duration, three of which were with adrenalin solution (1 in 2500) and the remaining seven with a glycero-cinnamate of strontium. A dressing of lint soaked in weak infusion of cinnamon in which some citric acid had been dissolved was then applied to the breast and the patient was instructed to keep it constantly moist. On the 22nd the patient complained of having passed a restless night after the sitting. She was slightly feverish but slept better on the following day. On removing the dressing the nipple appeared raw but free from crust. Another sitting of the same duration and nature was given her. This treatment was continued until the middle of May, when on the 19th the ulceration around the nipple appeared to be quite healed and no discharge could be expressed from it. Though the lump was much smaller the skin was still very knobby and puckered. A sitting of three minutes' application of iodine was then made. This caused some pain and smarting at the time. On the two following days the breast was very swollen, red, and tender, so that six days were allowed to elapse before the next application was made. This being a weaker solution was better borne and gave rise to no irritation. From this time onwards the patient was treated to alternate applications of cinnamate of strontium and iodine till 46 sittings were made. On July 29th the growth had greatly diminished in size and consisted of seven separate nodules, each of the size of a hazel-nut, imbedded in a firm fibrous stroma. The skin, though still adherent, was more soft and supple. The enlarged axillary glands had quite disappeared. The patient had gained 18 pounds in weight during the preceding three months. Writing on Feb. 7th, 1903, she says: "The lumps appear, if anything, smaller and more freely moveable. You will be pleased to learn that I have gained another four pounds since last I saw you. I still use the citro-cinnamic dressings at bed-time and take my vigorine" (a mixture of calcium glycero-phosphates with plasmon). The beneficial effects of cataphoric application of cinnamic acid are here well illustrated. Similar good results were obtained in Case 2 from its use.

CASE 2. *Epithelioma of the breast starting in the tubercles of Morgagni.*—A single woman, aged 37 years, consulted me on May 17th, 1902, and gave the following history. "I was struck on the right breast three years ago by a cricket ball. This caused a deal of pain and discolouration which was more than a fortnight in disappearing. Early in November last I noticed a small pimple on the inner side of the nipple which I scratched. As it then festered I poulticed it to bring it to a head. The ulcer so caused has, in spite of treatment by caustics, salves, lotions, and scrapings, continued to spread. I have also some lumps under my arm which cause some pain in movement. I have been repeatedly advised to have my breast off, but dread the operation, as both my parents have died after operation for cancer (father, the tongue; mother, rectum)." The patient was a flabby, florid-complexioned woman, in whom menstruation began at the age of 13 years and still continued. She had lived for years in the East, where she intended to return after her family affairs were settled. With the exception of malarial attacks and an attack of cholera she had enjoyed fair health. Her digestive tract was disordered by alcohol. Her liver was somewhat enlarged and so also was the spleen, but the kidneys were healthy, no sugar or albumin being found. On examination a large fungating ulcerative mass (three inches by two and a quarter inches) was seen covering the inner side of the nipple and spreading somewhat around it. The surface bled on the slightest touch. In a piece of tissue removed for microscopic examination typical cell nests were found. The growth had a deep attachment to the underlying tissues which were matted together. Several smaller hard nodular lumps were present in the outer half of the same breast. These involved the skin but were freely moveable over the underlying muscle. Both supraclavicular and axillary glands were enlarged; some enlargement could also be felt beneath the great pectoral fold. Owing to the amount of pain felt in the part a citro-cinnamate dressing was ordered to be applied for three days before starting cataphoric treatment. On the 21st the patient was given a first sitting of five minutes' application of suprarenal extract and four minutes with eucalyptol-paraffin, after which the citro-cinnamate dressing was again applied. The temperature rose the same night to 103·6° F. and gave rise to some hæmorrhage with much pain and discomfort. A mixture of citric acid and antipyrin was ordered. On the 22nd she had passed a restless night but her temperature was now normal. The dressing was saturated with the discharge and its removal caused a reappearance of the hæmorrhage which, however, readily yielded to a spray of adrenalin solution (1 in 1000). Fresh dressings were applied and the arm was bandaged to the side. On the 24th she had a second sitting of five minutes with suprarenal extract and eight minutes with strong iodine glycero-alcoholature. Her temperature rose at night to 102 6° and was attended with more pain but no hæmorrhage. On the next day the wound was found to be sloughy and the parts around were much inflamed. The surface was dusted with xeroform and the citro-cinnamate dressings were reapplied. On the 25th the wound continued to be very sloughy. A third sitting of three minutes with adrenalin and seven minutes with glycero phosphate solution was given. An iodo-eucalyptol dressing was applied. Pain had been great all day and the patient felt feverish with no appetite and great thirst. The evening temperature was 99·8°. The dressing was changed at bedtime for citro cinnamate. On the 30th the slough came away, leaving a clean, healthy surface. A fourth sitting of 10 minutes was given with adrenalin and cinnamate of strontium to the ulcer and an extra three minutes with weak iodine solution to the glands. The temperature at night was 100·2°. On June 3rd fresh fungating granulations reappeared and the patient had a fifth sitting of 10 minutes with adrenalin solution for four minutes and acid nitrate of bismuth for six minutes. The glands were treated with iodine solution. This destroyed the fungating mass. On the 9th the slough had come away and a sixth sitting of 10 minutes with adrenalin and glycero-phosphate solution was given. On the 11th a seventh sitting was given with adrenalin and cinnamate of soda. From this time the application consisted chiefly of cinnamate of strontium and the glycero-phosphates used at alternate sittings. On the 18th an axillary abscess was opened and the wound was swabbed out with iodo-eucalyptol solution. Towards evening œdema of the hands and arms appeared. The temperature rose to 103·8°. The swelling of the arms took over a week to subside, although the temperature dropped to normal by the next morning. On August 14th the ulcer had almost completely cicatrised and much of the surrounding and underlying hardness had vanished. On the 19th the ulcer was perfectly healed and the swelling in the breast had almost entirely disappeared, very little being perceptible with the hand laid flat on the breast The patient was now allowed to go to her friends. When next seen on Oct. 8th she was examined and the breast was found to have continued well. The skin over the ulcer was soft and paler. The swelling had all disappeared and she sailed for Singapore.

---

[3] It is found that when the tissues are rendered bloodless the effect of the light upon them is greatly increased.

tale: "No recur

the scar to remin

examination pro

which appeared to have started in the tubercles of Montgomery and to have spread most towards the sternum. I cannot recall any case having a similar origin. The swabbing-out of the abscess cavity with strong iodo-eucalyptol solution was undoubtedly the cause of the œdema. The great efficacy of bismuth salts in getting rid of the recurrent fungoid growth is to be remarked.

CASE 3. *Malignant ulceration of the vaginal cervix.*—A married woman, aged 32 years, the mother of two children, came to me on May 3rd, 1902, complaining of a foul vaginal discharge attended by hæmorrhage after intercourse. She complained also of dyspeptic symptoms (reflex?) and inability to indulge in much outdoor exercise. Her family history was good and her general health, with the exception of constipation and dyspeptic trouble, was fair. Examination per vaginam showed some ulcerative excavation of the vaginal cervix with enlargement of the lymphatics. The uterus was fairly moveable but heavy. Scraping from the surface confirmed the diagnosis of cancer. This case was treated by effluvation with Bisserie's electrode and cataphoresis by high frequency. The applications employed were chiefly cinnamate of soda and dilute solution of iodine. After each sitting the vagina was tamponed with a glycerolate of citro-cinnamic acid. After 12 sittings the

ion. Seven

re has been

or in other

organs. The constipation, which was a marked symptom in the case, readily yielded to treatment by the method devised by Marie of Toulouse.

CASE 4.—*Recurrence after extensive operation.*—The patient was a man, aged 73 years, from whose breast a malignant growth had been removed 14 months previously, and who consulted me on August 14th, 1902, for two recurrent nodules in the scar of operation. 12 sittings with iodine and cinnamate of strontium sufficed for their entire absorption. A recurrence in the axillary wound in November of the same year yielded to treatment after seven sittings.

CASE 5.—*Melanotic cancer starting in a pigmented mole on the tarso-metatarsal joint of the great toe.*—This patient, a man, aged 45 years, consulted me on May 23rd, 1902, about "an inflamed bunion" on the great toe of his right foot. He had from birth had a pigmented mole on the inner side of the tarso-metatarsal articulation, which became inflamed some nine months previously and had continued in much the same condition ever since. He had now, in addition, a nodular mass in his groin, the size of a goose's egg. Examination disclosed a melanotic cancer of the part with secondary induration of the inguinal glands. The part was treated with acid nitrate of bismuth, cinnamic acid, and iodine, and he was discharged cured on Oct. 27th. In December last he showed me several flesh moles that had since come out and taken on a similar action. These were small and yielded to treatment in from seven to 18 sittings. His last letter from the United States, dated April 21st, 1903, declared him to be still free from any further manifestation of the disease.

It must not, however, for an instant be supposed that I have met with similar success in all cases that have undergone this method of treatment. Of the 23 cases of which I have notes, in the five above-mentioned it proved successful. In two others it signally failed either to arrest the disease or to prevent secondary growth in the internal organs. Both these cases were, however, from the first hopeless in the extreme, both from the degree of cachexia present and from the disease having already spread to the lymphatics of the trunk. In 16 cases treatment was abandoned after sittings varying from four to ten in number, some preferring to undergo operation and others treatment by the x rays and Finsen's light. Yet if all these be accounted failures I would venture to suggest that 22 per cent. of successes is still sufficiently encouraging to recommend this method of treatment to the attention of the profession for a more extended trial than I have yet given it. It is not put forward as a cure for cancer but as a suggestion of the line of treatment to be adopted till that is really discovered. I personally believe that a "radio-active salt of strontium, introduced into the tissues by cataphoresis by high frequency," will prove the desired panacea of all forms of malignant disease. With these suggestions I leave the pursuit to others better fitted to carry it to a successful issue.

Leytonstone.

THE TREATMENT OF PLAGUE BY LARGE DOSES OF CARBOLIC ACID GIVEN INTERNALLY.

BY J. MITFORD ATKINSON, M.B. LOND., M.R.C.S. ENG.,
PRINCIPAL CIVIL MEDICAL OFFICER, HONG KONG.

IN 1899 I published in THE LANCET[1] the notes of a case of bubonic plague treated successfully by large doses of carbolic acid. I was led to try this remedy from reading an article on the treatment of influenza in a similar way. The patient above referred to was a Scotchman and he came into hospital practically as soon as he was attacked by the

---

[1] THE LANCET, Dec. 9th, 1899, p. 1589.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Prooemium.

NORWOOD COTTAGE HOSPITAL.

TWIN ECTOPIC AND UTERINE GESTATION; LAPAROTOMY; DEATH ON THE SEVENTH DAY.

(Under the care of Dr. JOHN H. GALTON.)

A WOMAN, aged 34 years, was admitted into Norwood Cottage Hospital on July 22nd as a case of pelvic cellulitis with the following history. She had had four children, the last four years previously. She was supposed to be pregnant since April 23rd. Six weeks before she had sudden pain over the hypogastrium which came on in the night while asleep. The pain was very severe and was accompanied with diarrhœa and sickness. Having taken aperient medicine she soon got better. Pain of the same character occurred 14 days after, when she fainted away. She was then in bed for a week. On July 20th a similar attack recurred. She was very anæmic on admission. On examination a rounded tumour which was dull on percussion occupied the hypogastric, left iliac, and lower part of the lumbar region, reaching to an inch from the umbilicus. Per vaginam the uterus was fixed and there was fulness all round, particularly in the left inguinal region and in Douglas's pouch. She was treated with half an ounce of peptomanganese three times a day and injections of boric acid with hot water. On August 1st Dr. Galton took charge of the case. There was then no sign of pregnancy in the breasts which were flaccid with flabby, pale areola and no trace of liquor Oldhamii. The rounded abdominal tumour had the feel of a pregnant uterus. The os was full, soft, and patulous, easily admitting the finger up to the internal os; the uterus was quite fixed and the swelling in Douglas's pouch was of doughy consistence. On the 2nd, after an enema at 8 30 A.M., she had an acute attack of rectal pain, quite different in character from the former attacks. A morphia suppository was given. At 11.30 A.M. when seen by Dr. Galton the pulse was 130 and the temperature was 98·4° F. She was very anæmic with an anxious, sunken look. On examination the swelling in Douglas's pouch had greatly increased and it was acutely distended and tense per vaginam and per rectum. At 4.30 P.M. A.C.E. mixture was given by Dr. Howard and, assisted by Dr. Michael and Dr. Parker, Dr. Galton performed laparotomy. A four-inch incision was made in the median line and the peritoneum was found filled in the lower part of the abdomen with blood and clot. The intestines were much distended with flatus. On the left side was the uterus, enlarged to the size of the full-time fœtal head, and on the right side, quite filled with blood clot, was found a broken cyst exuding blood. The right broad ligament was clamped with a long broad ligament clamp and the fœtus, about three and a half months, was first extracted; the cord was then traced down to the placenta and this was carefully separated with the fingers. It was then found that the pedicle of the cyst could be drawn up to the abdominal wound and it was transfixed and tied in two halves with a third ligature applied round the whole. There was no further bleeding and the remains of the cyst were cut away and the pedicle was dropped back. About three pints of fluid and clotted blood were then cleared out of the lower abdomen and Douglas's pouch and the abdomen was thoroughly washed out with sterilised hot water. The abdominal wound was closed with deep silver wire sutures and surface horsehair ones. The operation lasted two hours. The pulse after the operation was 120 and the temperature was 97°; at 10 P.M. the pulse was 128 and the temperature was 100°. On the 3rd at 2 A.M. the pulse was 140 and the temperature was 100·1°; at 10 A.M. the pulse was 128 and the temperature was 101·2°. She said that she was free from pain. At 6 P.M. the pulse was 128 and the temperature was 100·6°. On the 4th at 1 A.M. she vomited dark-green matter. At 10 A.M. the pulse was 128 and the temperature was 98·4°. The abdomen was less distende There was abdominal respiration and no tenderness at t upper part of the abdomen on pressure. At 6 P.M. the pul was 128 and the temperature was 100·2°. On the 5th 10 A.M. the pulse was 140 and the temperature was 100·2 at noon, with an enema of egg and turpentine the bow acted with a solid motion. She had had a good night a was looking better. On the 6th at 10 A.M. the pu was 146 and the temperature was 101·2° She had had good night and was looking better. One drachm of bran every two hours was ordered. At 10 A.M. and at 6 P turpentine enemata were given without effect. On the 7 at 10 A.M., the pulse was 148 and the temperature was 102· She had had a fair night but there had been sickness intervals throughout and constant sickness in the mornin One grain of calomel was given every hour for three do without effect. She was given a turpentine enema 10 A.M. and at 6 P.M. At 6 P.M. the pulse was 140 and temperature was 102 8°. On the 8th at 6 A.M. the pulse w 158 and the temperature was 102·8°. She was eviden sinking; there was still some abdominal respiration a the upper abdomen was soft and there was no pain pressure. At 10 A.M. the pulse was 160 and the temperat was 105·4°, and at 1 P.M. she died.

Necropsy.—The post-mortem examination was made hours after death. On opening the abdomen some se purulent fluid escaped; there was thick lymph between lower folds of intestine and especially over the anter surface of the uterus which was found to contain a fœ (three and a half months) and placenta with membran The pelvic tissues were deeply blood-stained and coated w lymph but there were no signs of recent hæmorrhage and ligatures applied at the operation were intact, the abdomi wound was closed in an even line, and no adhesion or lym was found on its internal surface.

Remarks by Dr. GALTON.—The above case is wor of record from its rarity. I can find no reference concurrent ectopic and uterine gestation in the pamph by Mr. J. W. Taylor of Birmingham, but Dr. A. Webster of Edinburgh refers to Loudon in 1836, Whinn in 1846, and cases by Starley, Cook, Galabin, a Browne. The case presented great difficulty in diagnos as the breasts gave no sign of pregnancy. Probably gestation was at first tubal and rupture occurring weeks before her admission to hospital converted this i a tubo-ligamentary gestation. The diagnosis was finally confirmed by the great increase of the swelling in Douglas's pouch following an attack of pain and faintness. The rupture, occurring about the fourteenth week, gave no possibility of hearing the fœtal heart as an aid to diagnosis Naegle has never heard it before the eighteenth week. The case also illustrates an observation of Mr. Taylor that a persistently high pulse-rate more than anything else is the gauge of the severity of the patient's condition. In this case abdominal respiration kept up to the last and the muscles were lax and there was no tenderness on pressure at the upper abdomen.

May I be allowed a word as to abdominal suturing in laparotomy? On post-mortem examination the internal abdominal wound was found united in a line six days after operation. The same result I have seen in a case under the care of Sir Spencer Wells on the fourth day after operation. In both silver wire sutures threaded on two needles were employed and in those cases which I have seen with more fortunate results (some 20) no evil after consequences have resulted from this suture; yet it is almost universally discarded at present with the occasional result that the general practitioner, often left in charge of the case, has to pick out the buried sutures.

MANCHESTER UNION HOSPITAL.

A CASE OF SIMPLE SOLITARY ULCER OF THE BLADDER.

(Under the care of Mr. ARTHUR H. BURGESS.)

A MAN, aged 25 years, was admitted to the Manchester Union Hospital on Feb. 10th, 1903, with a history that ten days before he had felt a sudden pain in the right groin and perineum while passing urine and that this had recurred on each subsequent occasion. He had always enjoyed excellent health previously and no history of venereal or other urinary trouble could be obtained. Micturition became more frequent as well as painful, and three days from the onset the urine contained blood, at first in small clots, later in larger amount, until on admission he passed almost pure blood At that date he was well nourished but extremely pale as a result of the repeated hæmorrhage The urine had a specific gravity of 1020, an acid reaction, and contained a large amount of blood Sounding of the bladder yielded a negative result and only a slight tenderness of the base of the bladder was noted on rectal palpation No signs of tuberculosis could be discovered in the genito urinary system or elsewhere and repeated examinations of the urine failed to disclose the tubercle bacillus Suprapubic cystotomy was advised but as the patient at first declined to undergo any operation it was not performed until Feb 25th. A circular ulcer, about three fourths of an inch in diameter, was discovered on the posterior wall of the bladder, close to the trigone and a little to the right of the median line Its edges were raised and thickened, its base was granular and sloughy, and from the latter smart hæmorrhage was actually seen taking place from three distinct points The rest of the mucous membrane appeared to be healthy The ulcer was thoroughly exposed by means of a caisson tube, its base was carefully scraped and afterwards well swabbed with carbolic acid solution 1 in 20, and a full-sized drainage tube was left in the suprapubic opening On the next day the urine was quite free from blood and has ever since remained so Free drainage was maintained for three weeks in order to give thorough rest to the bladder, after which the wound readily closed Convalescence was complicated by an attack of acute epididymitis on the right side, commencing ten days after the operation, but this subsided without suppuration When seen again four months later the patient appeared to be in perfect health and there had been no recurrence of any of his symptoms

Reviews and Notices of Books.

A Text book of Pathology and Pathological Anatomy By Dr HANS SCHMAUS Extraordinary Professor and First Assistant in the Pathological Institute, Munich Translated from the Sixth German Edition by Dr A. E THAYER Instructor in Pathology in the Cornell University Medical College New York Edited with additions by Dr JAMES EWING, Professor of Pathology in the Cornell University Medical College, New York Illustrated with 351 engravings, including 35 coloured inset plates London Henry Kimpton 1903 Pp 602 Price 21s

THE fact that this work has reached a sixth edition in Germany is ample proof of its high merits, and on a study of the book it is at once apparent that it stands out among the well known continental text books by reason of its close adaptation to the needs of students The author has evidently not attempted to compete with the more discursive works of his countrymen but has endeavoured to write a shorter, more compact, but equally comprehensive book embodying all the important principles and facts that should be brought before students when being instructed in pathology As a result he has written a text book in pathology which, whilst not only containing a vast amount of information, is also admirably adapted for students just entering on the subject There is a notable absence of the argumentative style, the quotation of authorities and the display of personal opinion that are prominent features in the larger works are also not present, neither is the full discussion of many topics that properly belong to a work of reference Instead of such material there is found in this volume a condensed statement of present knowledge, amplified with aptly chosen instances

The care with which the book has been written is well shown in the earlier chapters The subjects of hyperæmia, anæmia, œdema, and the like are rather apt to be found tedious to read about by the student Dr Schmaus, however, presents these matters in a most interesting manner The section on thrombosis, for example, is excellently arranged After an explanation of what is indicated by the term and a few remarks on coagulation of the blood, the conditions favouring thrombosis are discussed It is pointed out that although blood cells, red and white, plates, and fibrin assist in the formation of thrombi, many varieties of the process are known and the single elements composing them *may form separate clots under various circumstances.* Each of them alone may form a thrombus, but usually all are found The various forms of thrombi are then explained under the headings of stagnation thrombi, compression thrombi, dilatation thrombi, marantic thrombi, those which are formed by the precipitation of material on the wall of the heart or in the valve pockets (and which may be called parietal or valvular) and obstructing or obliterating thrombi The process of embolism is also lucidly described

In the chapter entitled "General Bodily Disorders from Disturbed Organic Functions" several subjects are discussed which are not usually considered in text books on pathology but, nevertheless, a knowledge of them is highly necessary to the student and will be especially useful to him when subsequently engaged in clinical work Thus the first section deals with the changes which ensue when cardiac insufficiency is marked, whether this be due to lessened cardiac action or to alterations in peripheral resistance, another section is concerned with disease from variations of temperature, and, finally, some remarks are made on auto intoxications, including uræmia, "retention icterus," myxœdema, diabetes, Addison's disease, the status lymphaticus, Basedow's disease, and puerperal eclampsia

The pathology of diseases of the respiratory organs is particularly well described and the illustrations of the varieties of tuberculosis which affect the lung are accurate and carefully selected In the chapter devoted to diseases of the digestive organs attention may be directed to the remarks on the various forms of hernia and to the other morbid conditions dependent upon changes in the location and lumen of the intestines The student generally finds the morbid anatomy of such affections difficult to understand, but Dr Schmaus, by the help of diagrams, is enabled to give a description which is easy to comprehend The chapters on the pathology and pathological anatomy of the other systems of the body are equally satisfactory We would also add a word of praise in regard to the illustrations; the majority of them are original and greatly add to the value of the work The task of translation has been admirably carried out by Dr Thayer

---

Encyklopädie der Mikroskopischen Technik mit besonderer Berücksichtigung der Farbelehre (Encyclopædia of Microscopy with special reference to Staining Processes) Edited by Professor Dr PAUL EHRLICH of Frankfort-on-the-Maine, Dr RUDOLF KRAUSE of Berlin, Dr MAX MOSSE of Berlin, Professor Dr HEINRICH ROSIN of Berlin, and Professor CARL WEIGERT of Frankfort-on-the-Maine With many Collaborators Berlin and Vienna Urban and Schwarzenberg 1903 Third Part, pp 801–1400 Price 15s

THIS *treatise, which is now complete, is a very useful one,* every microscopist requires at times to refer to some work of authority which will supply him with the details of the composition of preserving fluids and of staining agents and with the best methods of dealing with the various organs and tissues both of man and animals During the last two or three decades new subjects as well as new methods of inquiry have presented themselves, such, for example, as bacteriology and the intravital colouration of the tissues, which demand that special means shall be adopted for their thorough investigation Moreover, confusion frequently arises from various names having been applied to the same material Thus, methyl blue has been named Bavarian blue, Helvetia blue, and diphenylamin blue, so, too, Bismarck brown is identical with Manchester brown, with Vesuvin and triamidoazo-benzol hydrochlorate. But the reader will not only find described in this volume the best mode of dealing with the several tissues, but under the head of each chemical compound the particular purposes for which it is best adapted in microscopical research. Thus, under this same heading of the largely used methyl blue we learn that it has staining properties that render it extremely serviceable in making all cell nuclei conspicuous as well as the nucleoli of many nuclei, the non-basophile nuclei of some nerve cells being notable exceptions. It also stains the basophile granules of the blood; the basophile body of the lymphocytes and transitional forms; the granoplasm of plasma cells; the Nissl's granules of the nerve cells; the basophile granules of the erythrocytes and the central basophile substance of blood platelets; mucin; and, speaking generally, oxyphile protoplasmic bodies which have been made basophile by treatment with acids. It has the advantage of forming compounds with the tissues, the colour of which, whilst it cannot be extracted by water, is gradually removed by alcohol. It forms well-defined crystalline compounds with the acid aniline dyes (especially with eosin) which being neutral are of great importance in the manufactures. It possesses the remarkable property, first pointed out by Ehrlich, of staining the living tissues, having a special affinity for the nerves, and of thus rendering their most delicate fibrils and ramifications visible by its intravital operation. It has special advantages in bacteriological research, the larger number of bacteria becoming quickly and strongly stained in either watery or alcoholic solutions, enabling a careful observer, as Nakanishi has pointed out, to distinguish the nuclei in the bodies of the bacteria. Some bacteria, however, do not take the methyl blue stain in simple solution and special proceedings have to be adopted. Here is a translation of one paragraph dealing with the stain named "Löffler's methyl blue," which will show how satisfactorily the subject is treated, and this is only one of several methods given with equal fulness. To begin with: "Löffler's solution has the following composition: concentrated alcoholic solution of methyl blue 30 parts, 1 per cent. solution of potash 100 parts. The solution is allowed to act for five minutes and any excess of the colouring agent is removed by washing with distilled water. The bacilli of diphtheria, influenza, and typhus fever can thus be stained. In the case of sections the specimen should be immersed, according to its thickness, for periods varying from five minutes to two hours. It should then be washed with water, and successively dipped in a ½ to 1 per cent. solution of acetic acid, submitted to the action of a 90 per cent. solution of alcohol, thoroughly dehydrated with absolute alcohol, and, finally, after the addition of xylol, mounted in Canada balsam." A very full account is given of the mode of using methyl blue for the staining of nerves. For the intravital staining of the nerves the plan recommended is to bleed the animal (reptile, amphibian, or fish) and then to inject some of a ¼–⅛ per cent. solution of methyl blue into the bulbus aortæ after dividing the cord. In the course of from half an hour to three hours the organ, tongue, œsophagus, intestine, lung, or other part is to be freely exposed to the air, though without removal from the body, and after fragments have been excised and examined to determine the degree of staining the specimen should be placed in a fixing fluid. The advantages resulting from the use of ammonium molybdanate and of sodium phosphor-molybdanic acid and the strength of the solutions recommended by Bethe are given. Many pages are devoted to the details of micrometry and of micro-photography, which are fully described. The construction of the microscope is very shortly discussed, no optical details are given, and, on the ground that they are not used in Germany, the forms of the instrument employed in other countries are omitted.

As might be expected in a work of this kind a very long section, exceeding a hundred pages, is devoted to the nervous system and full accounts are given of the numerous methods that have been suggested or practised for displaying the nerve fibres, nerve cells, and neuroglia, for the demonstration of particular parts as the nerve sheaths and the nerve fibrils, and for the examination of pathological specimens. Professor A. Bethe of Strassburg, Professor C. Weigert of Frankfort, Professor F. Nissl of Heidelberg, Professor C. Benda of Berlin, and Professor H. Rosin of Berlin have combined to write this article and hence the subject is considered from every point of view. Professor Heidenhain of Tübingen contributes an interesting article on Paraffin and the numerous methods of imbedding specimens in that substance and of dealing with the preparations. There is a valuable and original article on a subject that has been but little studied outside Germany—viz., plastic reconstruction. It is written by Professor K. Peter of Breslau. The best methods of preparing the eye and its several parts are fully given by Professor H. Herzog of Berlin, and long articles are devoted to "silver methods," the staining of dry preparations, and to the microscopical investigation of tubercle bacilli. It will be understood from our remarks that the volume, which runs to 1400 pages, is really an encyclopædia of all that pertains to the microscope and shows what an amazing amount of work has been done by the Germans in this department of science. The bibliography appended to each article is an evidence in itself of the care which is bestowed in preserving a record of every advance in the practical use of the microscope. In one article alone, the Colouration of Mucus, we find references to about 100 works, nine-tenths of which are written by Germans, who appear by their patience and long-continued and keen observation to be especially adapted for this kind of study.

The Microscopical Examination of Foods and Drugs. By HENRY GEORGE GREENISH, F.I.C., F.L.S., Professor of Pharmaceutics to the Pharmaceutical Society of Great Britain. With 168 illustrations. London: J. and A. Churchill. 1903. Pp. 321. Price 10*s.* 6*d.*

THIS work is based upon the value of the microscope as an aid to the detection of adulteration in foods and drugs and we quite agree with the author that the merits of the instrument in this particular application have not been appreciated as they ought to be. When possible, however, preference is usually given to the evidence of chemical analysis, for although the microscope may be capable of indicating adulteration yet the extent of fraudulent mixing cannot be measured with strict precision by its means. Further, there can be little doubt that the powers of observation vary very much with different individuals, and even with considerable training with actual specimens some observers fail when put to the practical test. Mr. Greenish points out that the late Dr. Arthur Hill Hassall was strongly in favour of the use of the microscope for differential purposes in the examination of food and drugs and in skilled hands the microscope does undoubtedly prove a powerful searchlight. It was at the instance of THE LANCET that Dr. Hassall, assisted by Dr. Letheby and an artist, employed the microscope with such success in bringing to light the immense amount of adulteration practised before there was any serious attempt at legislation upon the subject. The results were published in a series of reports by THE LANCET Analytical Sanitary Commission. It is generally acknowledged that these investigations first established the value of the microscope as a means of detecting the adulteration of food. Mr. Greenish's fresh contribution to the subject is, we think, calculated to encourage the employment of the microscope for the same purpose, as anyone studying the excellent illustrations in the volume before us will readily allow, but it is to be regretted that no illustrations of adulterated specimens appear to be included. The illustrations refer to genuine unmixed specimens. If examples of the common adulterations had been given the public analyst for one would have found the book invaluable, though he will find the excellent drawings of the normal specimens a useful guide, inasmuch as they present to him, so to speak, the histology of standards. Mr. Greenish gives a more exhaustive account of the microscopical examination of drugs than of food, but it may be doubted whether the microscopical characteristics of certain drugs have any significance for the public analyst or are likely to have any application in his work. Perhaps at a future time Mr. Greenish may be induced to extend his microscopic description to actual examples of adulteration of foods and drugs. Work on these lines, admirable as it was in the days of THE LANCET Analytical Sanitary Commission, has fallen behind the times and an extension of the use of the microscope to present methods of adulteration would be valuable. The book presents a profitable field for study.

City of Liverpool: Handbook compiled for the Congress of the Royal Institute of Public Health. Issued by the Local Executive Committee. Edited by E. W. HOPE, M D., D.Sc. Edin., Honorary General Secretary of the Liverpool Congress. Liverpool: Lee and Nightingale. 1903. Pp. 330

THIS handbook, compiled for the Congress of the Royal Institute of Public Health in regard to the Liverpool meeting of July, 1903, is really a record of the public undertakings carried out by the city of Liverpool. The local executive committee desired that the handbook, which it has been customary to issue upon the occasion of the visit of the Institute, should be so amplified as to give an account of the establishments and undertakings of the committees of the corporation. It was also felt that some account of the institutions of the city, as well as the special features of the city and its port, would add to the interest of the volume. The deputy town clerk furnishes an introductory chapter and a descriptive account of the town-hall; the description of other public buildings is contributed by the city surveyor. The condition of Liverpool in regard to educational matters has been dealt with by Principal Dale of the University, and by Mr. Hewitt, the director of technical instruction. Very complete details of some of the works having for their object the promotion of public health are given, notably with regard to the Water-supply, by Mr. J. Parry, the water engineer; on Municipal Engineering, by Mr. J. A. Brodie, the city engineer; and on Electric Supply, which is dealt with by Mr. A. Bromley Holmes. The articles on Lighting and Locomotion are furnished by Mr. Bellamy. The Building Regulations are described by the city building surveyor, and the deputy city surveyor deals with the measures taken for the Demolition of Insanitary Areas and Re-housing. Descriptive accounts of the Baths, Wash-houses, Markets, Museums, and Police Force are added. References are made to, and in some cases short descriptions are given of, the Medical and other Charities of the city. The Seamen's Orphanage and Kindred Institutions are also described and an account of the training ship *Indefatigable* is given by Captain Bremner. An important article by Mr. M. K. Burton, the general manager and secretary of the Mersey Docks and Harbour Board, describes the work carried on in connexion with the immense shipping trade of the port. The introduction gives an interesting historical survey of the town. The work is fully illustrated by excellent plates and maps; it is probably the most elaborate and complete publication of the kind that has ever been issued.

LIBRARY TABLE.

Notes of My Life. By GEORGE WYLD, M.D. Edin. London: Kegan Paul, Trench, Trübner, and Co. 1903. 8vo, pp. 124. Price 3s. 6*d*. net.—The author of Christo-Theosophy prefaces this little work with the remark that having entered on his eighty-third year it has been impressed on his mind that he should briefly record some notes of his life. In the course of the "notes" he attempts to show that during the last 30 years he has been instrumental in producing the following results: 1. When acting as president of the British Homœopathic Society, by letters in the *Times* and THE LANCET, the initiation of a movement which has permanently led to a more philosophical and less antagonistic relationship between the two schools of medicine. 2. During 1877-79, the introduction into Great Britain of the substitution of vaccination direct from the calf in the place of vaccination from arm to arm—a practice which led to calf vaccination being made a Government department. 3. The inauguration of the formation of the Liberal Unionist party in 1886. 4. The demonstration by scientific experiments that spirit is the substance of matter in 1884. 5. In 1874 the demonstration by an experiment that the reason why, under anæsthetics, surgery is painless is that anæsthetics drive the soul or mind out of the body, the soul thus sometimes becoming visible externally to the body, and thus scientifically answering in the affirmative the question of thousands of years, "Does the soul exist when the body is dead?" Among the most interesting sections are those which touch on the lives of Professor Blackie, Carlyle, and Ruskin. Dr. Wyld gives a charming little picture of the first-named, of whom he writes that mentally his popularity was due to his affectionate, loving, and perfectly truthful nature, his perfectly free and outspoken, but never bitter, speech, and his habit of frequently bursting into song, a custom somewhat alarming on occasions. The notes will naturally appeal more to the family circle and to the friends of the author than to the general public who, *nevertheless*, will find interesting matter in the perusal of the sketch of the long life of one who has been publisher, phrenologist, allopath, homœopath, railway director, politician, student of mesmerism and spiritualism, president of the Christo-Philosophical Society, author, and would-be "law reformer." The style of the little book is simple, the diction is clear, much of it will convey pleasure, and every section will leave the conviction that the author believes in all that he has written.

Lessons in Disinfection and Sterilisation: an Elementary Course of Bacteriology, together with a Scheme of Practical Experiments illustrating the Subject-matter. By F. W. ANDREWES, M D. Oxon., F.R C.P. Lond., D.P.H. Cantab. London: J. and A. Churchill. 1903. Pp. 222. Price 3s. net.—This little book is an expansion of a course of lectures to the nursing staff of St. Bartholomew's Hospital. Dr. Andrewes has published it because there seems to be no elementary book which deals with the bacteriological aspect of disinfection in a systematic manner. He says that as sterilisation and disinfection are problems in physics and chemistry applied to bacteriology they can only be grasped from this point of view. The book is written for those who know no bacteriology, but who need sufficient acquaintance with the principles and methods to be able to understand what they are doing when they attempt to carry out processes of disinfection. Every person who is brought in contact with the sick-room will from this book be able to gather a useful, correct, and intelligible account of the manner of preventing contagion and of neutralising and destroying contagia. The illustrations, which are mostly diagrammatic, are well chosen. The section on Disinfection in Medical Cases appears to us to be specially valuable. The whole of the subject-matter is well arranged and the book is so well written and every point is made so clear that we can unhesitatingly recommend it.

B. Bradshaw's Dictionary of Mineral Waters, Climatic Health Resorts, Sea Baths, and Hydropathic Establishments. With a map showing the stations named and several smaller maps and plans. London: Kegan Paul, Trench, Trübner, and Co. 1903. Pp. 372. Price 2*s.* 6*d.*—The new edition of this work will be found to be a considerable improvement on the former one. It gives descriptions not only of the various health resorts and chief bathing places of the world, with special notices of the most popular and important of them, but also hotels which may be recommended with confidence, the quickest routes by rail, boats, or carriages, and other important details. The dictionary is preceded by an alphabetical list of watering places classified according to the chief constituents of their waters. While the book is intended for the public it will be found of great use by the members of the medical profession. Some 20 pages of the volume are devoted to an enumeration of ailments and the places where they are most effectually treated, a most convenient list from which hints can readily be obtained by the busy practitioner before consulting larger works.

Serum Therapy, Bacterial Therapeutics, and Vaccines. By R. T. HEWLETT, M.D., M.R.C.P., D.P.H. Lond., Professor of General Pathology and Bacteriology, King's College, London. London: J. and A. Churchill. 1903. Pp. 262. Price 5*s.* net.—The author has endeavoured to give a concise account of the preparation of antitoxins and antisera, and vaccines, with notes on the treatment of disease by their agency. In all cases brief directions are given for the making and testing of the various preparations. To render the subject-matter more complete short descriptions are included of certain substances of a somewhat allied nature, such as the typhoid extract of Jez and cancroin. The book is an interesting study in the production of immunity and is a fairly complete record of the work in this field up to the present time. Fascinating though many of the theories are which are here lucidly explained, the practical physician cannot help being impressed with the small residuum of really helpful therapeutical knowledge which is at present available. We see that the ice has been broken but that the implements for saving life are at present beyond the grasp of outstretched hands.

A Monograph of the Tsetse Flies (Genus Glossina), based on the Collection in the British Museum. By ERNEST EDWARD AUSTEN. With a chapter on Mouth-parts by H. J. HANSEN, Ph.D. London: Printed by order of the Trustees. Sold by Longmans and Co., London, and by others. 1903. Pp. 319. Price 15*s.*—The preface to this book is from the pen of Professor Ray Lankester who says that in view of the circumstances that the trypanosoma in the case of the Nagana disease is habitually carried by Glossina morsitans and that a trypanosoma has been found in the cerebro-spinal fluid of nearly 70 per cent. of the cases of sleeping sickness at Entebbe, Uganda, the question arises as to whether the other species of glossina are carriers of disease germs. An accurate knowledge of tsetse flies is therefore clearly indispensable for further progress in this inquiry. Collections from all parts of the world of flies, and other insects which suck blood, are needed, accompanied by careful notes as to habits, locality, and life-history. Such collections will be received with special welcome at the British Museum and at once investigated. The present work supplies a *résumé* of our knowledge of the tsetse flies and will enable those who may be engaged in Africa upon the investigation of the maladies produced in different animals by the various species of trypanosoma, to determine the species of glossina responsible for the dissemination of the hæmatozoon. The specimens representing glossina in the British Museum collection are in poorer condition than those of any other well-known genus of diptera, and it is hoped that this monograph will have the result of inducing those who have the opportunity to collect tsetse flies for the national collection. The book is all that we should expect it to be, considering that it comes from one of the greatest centres of the world's knowledge, and the authors must be congratulated on its completion. A bibliography of over 200 references and valuable reports by many observers are appended. The book contains a map of Africa illustrating the present knowledge of the distribution of glossina. The coloured reproductions of the work of the artist, Mr. A. J. Engel Terzi, are very beautiful.

Elementary Ophthalmic Optics. By Dr. FREELAND FERGUS.—We have now had an opportunity of carefully considering the notes which, as we mentioned in our issue of August 29th, had been sent to us by Dr. Freeland Fergus as a protest against our review of his book. As a result of doing this we have come to the conclusion, and we say it with deep regret, that Dr. Fergus's work has not received justice in our columns. We consider that in criticising the book as a trustworthy guide to optics it was not fair to say the "confusion of algebraic signs signifying direction is appalling." The formulæ employed are not superior to criticism, but Dr. Fergus has the greatest authority on his side in using them, for ophthalmologists have for a long time made constant use of them in practice and have found no error to result. As we have before said, both in our columns and in private correspondence, if Dr. Fergus would like to have his notes published in THE LANCET we shall be happy to publish them, but this of course would not remove from us the necessity of making this *amende* to Dr. Fergus for the pain we have caused him, and we do it with pleasure.

# Analytical Records
FROM
THE LANCET LABORATORY.

TABLOID IRON PHOSPHATE AND IRON HYPOPHOSPHITE.
(BURROUGHS, WELLCOME, AND CO., SNOW HILL-BUILDINGS, LONDON, E.C.)

A COMBINATION of the soluble phosphate of iron with the soluble hypophosphite of iron has been employed with advantage in cases of nervous depression associated with anæmia and also in some conditions of phthisis. Sugar-coated tabloids are now prepared containing these salts, two grains of the former and one grain of the latter being in each tabloid. One to three tabloids in accordance with the physician's directions are prescribed, taken in water after food. We find that the salts are protected against change by the tabloid coating.

DIABETIC FOODS.
(JOHN S. AUSTIN, LENZIE.)

We have examined specimens of bread and biscuits manufactured by the above baker and we find that they are not only satisfactory as regards flavour and texture, but their composition is suited to the requirements of the diabetic patient. The amount of proteid is considerably increased at the expense of the carbohydrates. Both preparations, however, contain some starch. The moisture in the bread amounted to 44·70 per cent., the mineral matter to 1·90 per cent., the fat to 14·40 per cent., and the proteid to 19·76 per cent. The proteid is thus about three times the amount contained in an ordinary moist loaf. The biscuits contained more proteid—namely, 22·66 per cent., the moisture amounting to 8·65 per cent., the fat to 20·10 per cent., and the mineral matter to 3·10 per cent. Both the biscuits and bread keep well.

"PEPULE" PEPSIN AND ZYMINE.

(FAIRCHILD BROS. AND FOSTER, NEW YORK, AND SNOW HILL-BUILDINGS, LONDON, E.C.)

We have carefully tested specimens of these "pepules" in the laboratory and have found them to be very active in peptonising proteids and in converting starch. The combination, therefore, is calculated to be useful in the processes of both gastric and intestinal digestion.

ISAROL.

(THE SOCIETY OF CHEMICAL INDUSTRY, BASLE; LONDON AGENCY, FUERST BROS., 17, PHILPOT-LANE, E.C.)

Isarol corresponds to the official ammonium sulpho-ichthyolate of the Swiss Pharmacopœia and is prepared by sulphonating the product of distillation of bituminous schists found in certain Alpine districts and finally neutralising with ammonia. It is a brownish-red viscid substance with an odour resembling coal gas. It contains about 8 per cent. of sulphur. Its therapeutic properties are stated to be practically the same as icthyol. It is used in particular, with excellent results, in chronic skin diseases and in gynæcological practice.

OLD OTTERBURNE WHISKY.

(STROMNESS DISTILLERY, ORKNEY, N.B. SOLE AGENTS, MOSS AND POTTER, THETFORD, NORFOLK.)

This spirit is described as a pure all-malt Scotch whisky and we believe this description to be correct. The analytical results, at any rate, which we obtained conform to those yielded by a genuine all-malt or unblended spirit. The figures in regard to secondary products were as follows, given in grammes per hectolitre of absolute alcohol present: acidity reckoned as acetic acid, 24·00; aldehydes, 15·40; furfurol, 2·50; ethers reckoned as ethyl acetate, 61·60; and higher alcohols, 220·00. Other analytical results were as follows: extractives, 0·12 per cent.; mineral matter, 0·02 per cent.; alcohol, by weight 42·29 per cent., by volume 49·81 per cent., equal to proof spirit 87·29 per cent.; and fixed acidity reckoned as tartaric acid, 0·012 per cent. The last figure is an indication of storage in sherry casks. The flavour is malty though delicate.

LIQUOR COLCHICINÆ SALICYLATIS (HOPKINSON'S)

(BAISS BROTHERS AND STEVENSON, LIMITED, JEWRY STREET, LONDON, E.C.)

This preparation has been for some time before the profession and the therapeutic efficiency of this particular combination of the alkaloid with salicylic acid is recognised in the treatment of chronic rheumatism and gout. It is stated that this preparation, unlike the ordinary combination of colchicum wine and salicylic acid, is without depressing effect or any undesirable action upon the renal and hepatic organs.

"PROTECTYL."

(THE CHEMICAL DISCOVERIES, LIMITED, 60, HAYMARKET, LONDON, S.W.)

"Protectyl" is a germicidal preparation which is said to effectually prevent venereal infection when properly applied and we can well believe that it would have that effect. It is a clear, glairy, mucilaginous fluid containing, according to our examination, salicylate of mercury. The fluid is contained in a collapsible tube provided at its aperture with a conical piece of soft indiarubber. According to bacteriological experiment *in vitro* "protectyl" rapidly kills streptococci and gonococci. In an address delivered before the Medical Society of Aix-la-Chapelle by Dr. Ernest J. Feibes, the following tests are cited as proving the preventive efficiency of the preparation:—A drop of pure gonorrhœa pus was lightly rubbed into the mucous membrane of the urethra and "protectyl" was applied one minute after. There was found to be no infection. In a similar experiment "protectyl" was applied three minutes after and still there was no infection. In a third test the application was applied six minutes after with the same result. Dr. Feibes confidently suggests that "protectyl" affords a means also of safeguarding against syphilitic infection.

BANOROB.

(M FRANCIS AND CO., 4A, THE POULTRY, NOTTINGHAM.)

This consists of a small square slab of well-known antiseptic materials which is intended for use in the hair-dressing shop and for the rapid preparation of an antiseptic wash for sterilising razors, scissors, combs, brushes, &c. The use of this tablet suggests a cleanly method which should be universally adopted in hair-dressing establishments.

SUPRARENALIN.

(ARMOUR AND CO., 45A, HOLBORN VIADUCT, LONDON, E.C.)

We have received a specimen grain-tube of suprarenalin and a one-ounce bottle of suprarenalin solution from the above firm The former is the active principle of the gland and its physiological action is the same—that is, it is a powerful astringent and hemostatic, which may be used in minor operations without hæmorrhage resulting. Suprarenalin is a fine crystalline powder readily soluble in acids or alkalies It can be boiled with water and so sterilised without impairing its physiological capacity. The suprarenalin solution is of 1 in a 1000 strength and affords a convenient means of applying the suprarenal gland principle; it may easily be sterilised by boiling.

NON-ALCOHOLIC GRAPE "WINES."

(AGENCY, REINHEIMER AND CO., 14, THE AVENUE, SURBITON, SURREY.)

These are excellent preparations of Pasteurised grape-juice bottled at Worms on the Rhine. We have received several varieties, such as white, red, dry, and sweet. We give the analysis of three types:—Red "wine": alcohol, by weight 0·53 per cent., by volume 0·66 per cent., equal to proof spirit 1·16 per cent.; extractives, 17·00 per cent.; mineral matter, 2·80 per cent.; sugar, 14·28 per cent.; fixed acidity reckoned as tartaric acid, 0·66 per cent.; and volatile acidity reckoned as acetic acid, 0·048 per cent. The "wine" had the agreeable flavour of the grape and with effervescing water a very refreshing beverage may be prepared As will be seen, the "wine" is, for practical purposes, non-alcoholic. We could find no preservatives and, indeed, within a few hours of opening the juice was in a state of brisk fermentation. White "wine" (dry): alcohol, by weight 1·06 per cent., by volume 1·34 per cent., equal to proof spirit 2·34 per cent.; extractives, 13·68 per cent.; mineral matter, 0·27 per cent.; sugar, 11·40 per cent.; fixed acidity reckoned as tartaric acid, 1·215 per cent.; and volatile acidity reckoned as acetic acid, 0·048 per cent. This "wine" contains nearly 5 per cent. less sugar than the other "wines" examined; the flavour was agreeably acid and characteristic of fresh genuine grape-juice. "Schlosberg": alcohol, by weight 0·53 per cent., by volume 0·66 per cent., equal to proof spirit, 1·16 per cent.; extractives, 16·74 per cent.; mineral matter, 0·30 per cent.; sugar, 13·88 per cent.; fixed acids calculated as tartaric acid, 1·04 per cent.; and volatile acid reckoned as acetic acid, 0·018 per cent. This "wine" had also the same satisfactory features of the specimens previously described. All were practically free from alcohol and sound in condition, the amount of acetic acid being inappreciable. We have not before examined specimens of grape-juice as satisfactorily preserved as these, whilst they are free from chemical preservatives. With effervescent water they make a wholesome, palatable, and refreshing beverage.

THE ELEVENTH INTERNATIONAL CONGRESS OF *HYGIENE AND DEMOGRAPHY.*

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Brussels, Sept. 1st.

AT all great international congresses there are a large number of persons who profit by the occasion to enjoy a cheap holiday. If they can only find a pretext for enrolling themselves as members they profit by a reduction in the railway fares and they can enjoy the special advantages and facilities for participating in various excursions. There are also public receptions, banquets, and many functions which it may be pleasant to attend. Now if over and above these considerations the congress meets in some interesting country, like Spain or Hungary, that is outside the more frequented tourist routes then the temptation to attend the congress is very great. Of course, the more *people present the greater the moral influence of the* congress. But, for my part, I have not found that the attendance at the meetings of the sections varies very much. There are at these congresses several hundred earnest members and they are always there and always working. The others, on the contrary, though they may be counted by the thousand, make but brief visits to the sections. On the present occasion these 1000 or 2000 pleasure-seekers are nearly absent and there should be some 1300 or 1400 members who will comprise a much greater proportion of workers. This cannot be considered otherwise than as an improvement, particularly as there has been no falling off in the number of delegates. It is those persons who make the congress a pretext for a holiday who have fallen off, probably because Brussels is so near and so well known. On the other hand, there is no falling off in the attendance of practical sanitarians and the debates promise to be not only as interesting but probably more interesting than on any previous occasion. In any case they have never been better organised. Not only were circulars issued some months before the dates announcing what were the subjects on which reports would be presented to the Congress, but a very large quantity of these reports have been written and printed in time to be distributed to the members before the Congress meets. What will make a huge volume is already in the hands of the members. Indeed, there is far more printed material than can possibly be read; but in any case everyone can at least read three or four reports on the two or three subjects in which he is especially interested before the opening of the Congress. Then in the sections where these subjects are to be debated the members attending will be in full possession of the main facts and arguments submitted for discussion. In such circumstances the discussions should be to the point and the conclusions should be appropriate and practical. This is not always the case at these congresses.

Though late in taking official cognisance of these congresses the British Government are now amply represented. The Local Government Board is represented by Dr. Theodore Thomson and Dr. S. M. Copeman; the Home Office by Dr. T. M. Legge, His Majesty's medical inspector of factories, and Miss Adelaide M. Anderson, principal lady inspector of factories and workshops. The Board of Works proposed to send Dr. W. H. Corfield, one of the oldest and most faithful attendants at these congresses, who used formerly to lament that Great Britain, and especially the British Government, was so poorly represented. Alas, Dr. Corfield has unexpectedly died, but his colleague from the same department Mr. J. B. Westcote, architect and surveyor to His Majesty's Office of Works, is here. The War Office sends Lieutenant-Colonel A. M. Davies, R.A.M.C., sanitary expert attached to the Army Medical Service, and Major T. McCulloch, of the same service. The Colonial Office send Sir Patrick Manson and Ireland sends Lieutenant-Colonel D. Edgar Flinn, medical inspector of the Local Government Board for Ireland. It cannot be said this time that the *British Government is not taking adequate part in the* proceedings. The British colonies are also following suit, for Ceylon is represented by Dr. H. M. Fernando; the Fiji Islands by Mr. B. Glanvill Corney; Northern Nigeria by Dr. W. H Londley; New Zealand by the Hon. W. Pember Reeves, chief agent for the colony in London; and Queensland by its general agent, the Hon. Sir Horace Tozer, K.C.M.G.

Apart from this official and governmental representation the local authorities in England have taken much greater interest in the proceedings than on any previous occasion. The presence is announced of many practical hygienists—namely, the inspectors of nuisances or sanitary inspectors from a large number of towns. Of course a considerable number of British medical officers of health have also been appointed to attend the Congress but this was the case at former congresses. Among these medical officers of health I note Dr. W. Collingridge for the City of London, Dr. Francis J. Allan for the City of Westminster, and Dr. E. H. Snell, the medical officer of health of Coventry. Professor Sims Woodhead of Cambridge University and Professor Delépine of Victoria University are here. The following British bodies, among others, have appointed delegates: the Association of Medical Officers of Schools; the Bedford College for Women; the British Gynæcological Society; the British Medical Association; the Charing Cross Hospital Medical School; the Epidemiological Society (nine delegates); the Institution of Mechanical Engineers; King's College, London; the Mansion House Council on the Dwellings of the Poor; Queen's College, Cork; the Royal College of Surgeons *in Ireland; the Royal Institute of British Architects*; the Royal Institute of Public Health (ten delegates); the Royal Medical and Chirurgical Society; the Sanitary Institute, Parkes Museum (seven delegates); the South-Eastern and Chatham Railway Company; University College, London; the University of Adelaide (Australia); the University of Birmingham; the University of Bombay (India); the University of Cambridge; the University of Edinburgh; the University of Glasgow; the University of St. Andrews; and the University of Sydney (Australia). Never before has Great Britain been so well represented, and as in all my descriptions of previous congresses I have complained of the paucity of British delegates it is with the greatest pleasure that on this occasion I find myself in a position to speak in quite a different manner on this subject.

The other Governments which have sent official representatives *are those of the German Empire*, Argentine Republic, Austria-Hungary, Belgium, Brazil, China, the Independent State of the Congo, Corea, Cuba, United States of America, Denmark, France, Greece, Guatemala, Italy, Japan, Luxembourg, Mexico, Monaco, Holland, Peru, Persia, Portugal, Roumania, Russia, Siam, Norway and Sweden, and Uruguay. So it will be seen that the international character of the Congress has been well maintained.

THE OPENING OF THE CONGRESS.

Brussels, Sept. 2nd.

At nine this morning a vast concourse of people gathered in the splendid central hall of the Palais des Académies. Many of the veterans of sanitary reform from the leading nations of the world were there and a great variety of uniforms helped to enliven the scene. It was 9.40 A.M. when the approach of His Highness Prince Albert was announced. He wore the uniform of a colonel of the Grenadiers and was accompanied by the *Minister of* Foreign Affairs and the Minister of Public Instruction. It was the Minister, M. FAVEREAU, who opened the proceedings by expressing his thanks to the 27 Governments that had accepted the invitation of the Belgium Government and had supported the Congress. They were proud to think that the two first international congresses met to discuss hygiene had selected the town of Brussels for their deliberations and he now invited His Highness to open the present Congress.

Prince ALBERT at once rose, welcomed all present, and said that he considered himself highly honoured in being called upon to open an assembly of such eminent men of science. He was glad to salute the delegates of the various Governments, of the universities, of the municipalities, and of the learned societies. It was not the first time that they had come to Belgium and their presence had spread the knowledge of hygiene so that now the death-rate was reduced considerably and cholera epidemics were held in check. Hygiene had thus succeeded in preserving the public health and *greatly helped in the transformation* of society that was taking place. These changes led to great agglomerations of people in the large cities and this gave rise to special dangers which could *only* be overcome by the aid of hygiene. Such progress in sanitation was opposed by the apathy and indifference of the thoughtless and the want of financial means. But the Congress would help to spread a desire for knowledge, while in combating sickness they were adding to the wealth of the country. Indeed, many of the subjects to be discussed were of general public interest. This was notably the case in regard to tuberculosis and to infantile mortality. It seemed as if all the enemies of a healthy life concentrated their force of attack on helpless infants. It was for hygiene to enter into our customs. The great endeavour should be to overcome ignorance. It was the glory and the satisfaction of men of science to know that they contributed to this end and in congratulating them on their noble mission Prince Albert declared the Congress to be open.

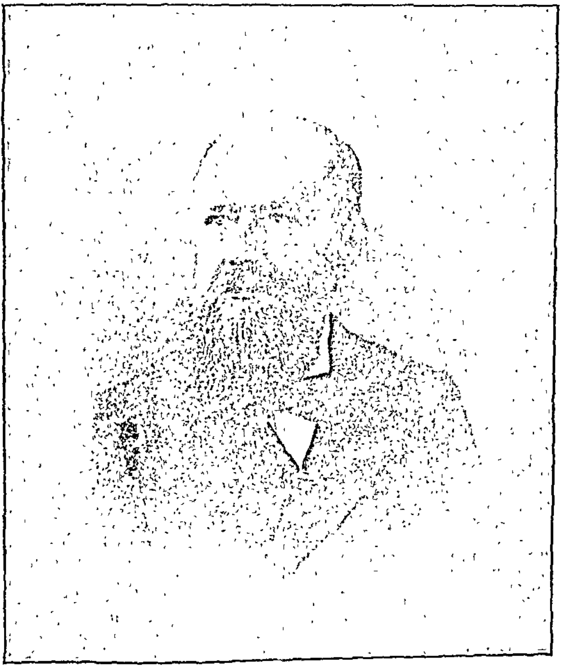
M. **BECO**, the President of the Congress, then delivered a long address showing what the Royal House of Belgium and what the ruling sovereigns and chiefs of other European States had done to forward the cause of sanitary science and the success of the international congresses of hygiene. In the course of his remarks M. Beco quoted a part of the speech delivered by His Majesty King Edward VII. when, as Prince of Wales, he opened the Congress of Hygiene held in London in 1891.

The Secretary-General of the Congress, Dr. **PUTZEYS**, then followed with further details about the congresses, and M. **DE MOTT**, senator and mayor of Brussels, said a few words to welcome the members in the capital of Belgium. There now ensued the habitual and long series of speeches from the [illegible] nationalities. This Dr. [illegible] refined, diplomatic, and gracious suavity, commenced in appropriate terms. He was followed by General **SCHJERNINGS** for Germany and the well-known statistician Herr **MAINA-STERNEGG** for Austria. Dr. **CSATORY** spoke for Hungary and Dr. **CORTEZO** for Spain. Dr. **HARRINGTON** was called upon to speak for the United States of America but did not respond. M. **HENRI MONOD** spoke for the French Government and Professor G. **SIMS WOODHEAD** for the British delegation. Dr. **CELLI** said a few words for the Italians, Dr. **DI MISCHIMA** spoke in German for the Japanese, Dr. **KIAES** for Norway, Dr. **SPRONCK** for Holland, Dr. **SCHMITT** for Switzerland, and Dr. R. **DE ARELLANO** for Mexico. The Prince then declared the sitting clo[illegible] t the small sanitary exhibition [illegible] vith the Congress.

In the [illegible] met and were well attended in spite of the great heat. In the evening the members of the Congress were received at the Palace.

Brussels, Sept. 6th.

As usual in all congresses the programme for most of the sections has been overcrowded. Nevertheless a great deal of time has been saved by taking all the reports as read and commencing the discussions forthwith. Thus the principal function of the reporters has been to reply to criticisms rather than to expound and to read their reports. In this manner the resolutions were reached at an earlier stage and I think it will be found that a very large number of important motions have been carried. There might, however, be no great merit in this were it not also a fact that the motions were not hastily and thoughtlessly adopted. On the contrary, the discussions which I have heard were very earnest, the speakers nearly all were specially qualified, and every word of the motions was most thoroughly studied in all its bearings, so that the opinion of the majority, and it was very often the unanimous opinion of the whole section, might be faithfully expressed. The sections have also all been well attended; indeed, they were in some instances too well attended, for even the most spacious rooms have been so crowded as to become unbearable. How different this is from



M. E BECO,

President of the Eleventh International Congress of Hygiene and Demography and Secretary-General of the Ministry of Agriculture, Intrusted with the general direction of the Public Health Service of Belgium.

many of the previous congresses has been the subject of many comments. There can be no doubt that on the present occasion the tourist element has very sensibly distinguished itself by its absence. The members of this Congress are really in earnest and therefore they attend to the business of the Congress. Thus with a smaller total membership there is a much larger attendance at the sectional meetings.

But if much work has thus been accomplished, relaxation has also been provided, and this in a well-organised manner. There have been no storming of buffets and no free fights for the sake of some small privilege, none of the unseemly scenes which other congresses have had to deplore. The members had no difficulty in gaining access to the great hall where the opening ceremony was held and they penetrated the Royal Palace with equal facility on the evening of the same day. They were invited to assist at what is called here a *raout*, a term which has the advantage of vagueness in its meaning. It does not mean a supper, it does not mean a ball, but it could possibly mean something that could be coaxed into being a little bit more lively than a conversazione. In any case it is a function for which full dress and the display of all medals, stars, and orders are indispensable. To the stranger it at least has this advantage, that it enables him to visit the palace not as a tourist who is only shown empty rooms with the furniture covered over and nearly all the shutters closed; on the contrary, all is brilliantly illuminated, the rooms are crowded, and everyone is dressed to his best. Then, if it is a royal palace the royal family is there; if it is a muncipal palace then the burgomaster is there in his civic robes. On the present occasion we have had a *raout* both at the Royal Palace and at the town hall. His Majesty King Leopold II. being absent we were received by His Highness Prince Albert. The Prince talked pleasantly to the members of the Congress as he slowly progressed from one end of the Palace to the other. Having thus made the acquaintance of many members of the Congress, Prince Albert invited them to take some light refreshment and the doors of the room containing the buffet were thrown open. On such occasions much inconvenience would be avoided if waiters could carry trays round containing the light drinks so needed when, as happened on this occasion, there is exceptionally hot weather. The Palace is a modern structure, the rooms are richly furnished, and there are a few celebrated pictures on the walls.

No comparison can be established between the royal and municipal palaces. The town hall of Brussels is unique. Its magnificent façade is some 600 years old. Its graceful tower, its rich Gothic architecture, its history and its souvenirs, its paintings, its tapestry, and its innumerable works of art all combine to render a visit to this edifice one of the most interesting experiences that could possibly reward a congressist for his work and fatigue. Round and round we went through all the rooms, passing and repassing, never tired of admiring, for instance, the great banquet hall with its art tapestry representing the different trades; the hall for marriages, with its allegorical frescoes; the council hall, where Count Egmont and Count Hoorn were condemned to death, and *per contra* the various proofs given of the ultimate triumph of the citizens of Brussels. Here, indeed, we were walking through history and were having the honour of being received in one of the buildings where through long ages so much had been done for the cause of local government and civic freedom. This was, indeed, a most enjoyable evening, for there was so much to see and to interest.

Yesterday we had a strange entertainment. The handsome Alhambra Theatre was reserved for a special gala performance, where the whole Congress assembled again in full dress. Now a gala performance in honour of an international audience is not easily arranged. On such an occasion there is a natural desire to show what the nation which entertains is capable of doing; on the other hand, if the guests are to enjoy themselves the performance should be comprehensible to all, however their languages may differ. In such circumstances dancing and music naturally suggest themselves, and an attempt was made to find something Belgian and yet that would be understood by all. So resort was had to the *mimodrame*, a play acted but not spoken. A work of the Belgian Zola was selected and we had *Le Mort*, by C. Lemonnier and P. Martinetti, rendered by the Artistic Company for the Propagation of Belgian Works. It was marvellously done but very dreadful. It might be construed as an essay on the force of suggestion. Two brothers having murdered and robbed an individual suggest themselves into seeing their victim's phantom arise on all sides. Finally, as the two brothers, exhausted, lay asleep side by side the dead man rises up between them. They strike each other thinking that they are striking the ghost, and thus the one is killed by the other. Nothing could be more ghastly, but the rendering was most enthralling though gruesome. Afterwards there was some very artistic dancing and throughout we had excellent music performed by the orchestra of the Grand Opera, the Théâtre Royal de la Monnaie. Thus far both in its pleasure and its work the Congress has progressed most satisfactorily.

Brussels, Sept. 8th.

Even on Sunday the congressists were allowed no rest; indeed, they had to be up and about earlier than usual. A special train was waiting for them at the Northern Station timed to start punctually at 8 o'clock. A second train was to start 20 minutes later, but most of the visitors and guests were in time for the first train; consequently every seat was taken, while in the second train some of the carriages were almost empty. In less than an hour the trains, containing close upon 600 members of the Congress, reached Antwerp, and as the members of the Congress left the station a ticket was given them bearing the name of an excursion steamer. These steamers were to start a little after noon and in the meanwhile we were all requested to go to the town-hall. Here we had a short quarter of an hour to stroll round and to admire the historical paintings and the Renaissance ornamentation of this splendid sixteenth-century edifice. Then in one of the largest rooms a few words of welcome were uttered by the burgomasters and the members of the Congress were requested to form themselves in five groups and for that purpose to enter the room bearing the number of the group selected. Each of these groups would visit different sanitary services and have different conductors, to whom the members were introduced on entering the room allotted to them. This was all very well arranged, but there was one mistake which caused considerable confusion. As the various rooms all opened on to a gallery that overlooked the State staircase it would have sufficed to place one steward on this gallery who should have given each group the signal when to start and should have seen that one group got well away before he allowed the next to go out. As it was, several groups left their respective rooms at the same time, collided on the stairs, and got inextricably mixed. The leaders, whom the members had never seen before and who wore no insignia, were soon lost to many of us and when the large square in front of the hall was reached the congressists appeared like scattered sheep in search of their shepherd. However, they soon got off with one or the other groups, though perhaps not the group they had intended to follow, and were taken to see some of the sights of Antwerp from the sanitary point of view. One party travelled along the main sewers in boats. Others went to see the Bureau d'Hygiène and all its dependencies. The third party visited the hospitals and another party an orphans' home, a sailors' home, and a dead-house. But no inconsiderable number of members played truant, deserted the groups, and went off on their own account to see the celebrated Antwerp picture gallery, the cathedral, or the Musée Plantin. Wherever the members went they all managed, however, to be in good time on the quays close to the old Steen fortress where the four excursion steamers were waiting. The excursion lasted three hours. The steamers first went seawards as far as a point rejoicing in the name of *Pipe-de-Tabac*, then turned back, passed in front of Antwerp along the whole line of the docks, travelling up stream to the shipbuilding yards and floating dock, and only turned back to Antwerp when they had reached Hoboken. During the journey liberal lunch was served. As there was nothing else to do but to eat, drink, and be merry, it may be said that in this also the congressists demonstrated that they were not devoid of special aptitudes. Among the Belgians, on the ship and round the table where I sat, some of the most inveterate political adversaries were placed close to each other. It was a real pleasure to note how completely they seemed to forget their antagonism and joined together as if they were the best of friends, only thinking how to promote the general good-feeling. It was half-past three when we landed and there was still time to visit the handsome zoological gardens before the special train took us back to Brussels, where for once we were able to retire at an early hour.

Not so the following Monday evening, for this was the night of the great banquet. So numerous were the guests that even the large hall of the Hôtel Métropole could scarcely hold us. A very elaborate and excellent dinner was served, accompanied by a large and choice selection of wines. M. Beco, as President of the Congress, occupied the chair, and on his right sat M. Francotte, the Minister of Industry and Labour. Then came Professor Brouardel, President of the Congress Permanent International Committee. On the other side were M. de Mott, Mayor of Brussels, and Professor von Köhler, representing Germany. Grouped as close as possible were the official representatives of the different nationalities. So large was the assembly that a trumpeter was employed and silence was imposed by the sound of the bugle when the time arrived for the toasts.

M. BECO, of course, was the first to rise and in enthusiastic terms proposed "The King." He urged that without distinction of country His Majesty Leopold II. had been an active agent of civilisation and of peace throughout the world. He also spoke of hygiene as promoting the sentiment of solidarity and expressed his thanks to all the Governments which by appointing official delegates to attend the Congress had forwarded the cause of international sanitation. He concluded by a graceful allusion to the help given by Prince Albert.

M. FRANCOTTE, the Minister of Industry and Labour, said he liked to hear, and he did hear on all sides, that the [illegible] M. Beco one of the greatest administrative forces, and in Professor Putzeys one of the most powerful educational forces, of the country. Our nation, said M. Francotte, is but small, but we love it the more. The national soul has been formed by our common suffering and labour. We are pleased to show our country and pleased by the marks of approbation we receive. The principal groupings or associations formed to promote human welfare have selected Belgium for their centre. He hoped that in his country some of the greatest problems of the day would find their solution. He thanked the foreign Governments for sending representatives and the members for coming. They brought with them the most precious of all wealth—the wisdom of the world. In the name of the Government he would promise that he would strive to carry out in practice some of the resolutions voted by the Congress. In conclusion, he wished the members present the best of hygiene—happiness.

Professor BROUARDEL now rising, exclaimed, "Yes; the Congress is a success, but Belgium is not a little country, since it can achieve such great things." After 25 years of experience he did not think that any congress had displayed so much assiduity in its work or shown evidence of such careful organisation. Everyone had helped, and everyone had confidence in M. Beco and Professor Putzeys. Their hard work had made hygiene advance and sanitary legislation would benefit in many countries.

M. DE MOTT spoke next, alluding to the first international assembly ever gathered together to discuss public questions, which met in Brussels in 1852.

Then came various speakers of different nationalities, but none were received with so much applause as the Chinese delegate, perhaps because this is the first time a representative of that great nation has spoken on such an occasion. He explained that the Chinese were a very earnest people and when they took a matter up they did it very thoroughly. He proposed to translate into Chinese some of the proceedings of the Congress and hoped that this would lead to the spread of knowledge on the subject in his country.

Dr. CHARLES HARRINGTON spoke for the United States and Professor SIMS WOODHEAD for Great Britain, and it was not till a late hour that the members rose.

THE CLOSING OF THE CONGRESS.

This afternoon the Congress has been formally closed at the general meeting held in the great hall of the Palace of the Academies where the opening ceremony had taken place. M. BECO presided and Professor PUTZEYS read out all the resolutions adopted by the sections, approved by the International Committee, and now submitted to the Congress as a whole. Excepting two verbal alterations they were all accepted by this the general assembly of the Congress.

Professor VON KOLHER, director of the Berlin Imperial Institute of Hygiene, now rose to invite the Congress to meet four years hence at Berlin. He alluded in grateful and flattering terms to the admirable organisation of the Brussels Congress and promised that the Germans would strive to show themselves worthy of so good an example.

The proposal was unanimously accepted and Professor BROUARDEL now joined in the general praise of the Belgian organisers. He said that in six days the Congress had held about a hundred different sittings, that all the sections had carried out their programme, and that on no occasion had he known so much assiduity and such a large attendance at the sections.

Then followed the usual series of speeches of thanks which were very hearty but lacking in originality. The representative of the United States Government, Dr. HARRINGTON, said that he was authorised to invite the Congress to meet at Washington in 1909 and hoped this proposal would be accepted. Dr. G. H. F. NUTTALL said a few words on behalf of the British members of the Congress, and after other nationalities had had an opportunity of expressing their gratitude it was announced that M. de Montricher was organising a sanitary congress at Marseilles for next April at which any member of the present Congress would be very welcome.

It was now the turn of the Belgians to reply, and M. BECO accepted the compliments which he had received not for himself as much as for an army of assistants who had worked under him whose names were unknown and without whose devoted and able aid the Congress would not have been a success. He also spoke of the exhibition and finally thanked the members of the press for their effective and indispensable assistance.

Then the Minister of Agriculture rose to close the Congress, which had proved a success even beyond the most sanguine hopes of its promoters. In the name of the Belgian Government he thanked the promoters of this success. These [illegible] which had made so judicious [illegible] members who had displayed [illegible] ere were the reporters who had [illegible] grateful task, but many of the reports would remain as monuments. Then there was the press and finally the general public. All engaged in the work had contributed to the welfare of humanity and he hoped that during the four years separating them from their next meeting much suffering would be prevented and many lives would be saved.

The Congress was then declared closed, but the members are not yet dispersed. To-morrow at seven in the morning several hundred members are going to the Borgoumont Asylum and to Spa; in fact, the excursions will last three days, so that though some members are returning home at once a large number still remain.

SUPERANNUATION ALLOWANCE.—Dr. Richard Purnell Tyley, who for 36 years has been medical officer of the ninth district of the Axbridge (Somerset) union, has been granted a superannuation allowance of £46 per annum.

TRUE CHARITY.—Some little time ago a Hull fisherman named Barry was knocked down by an engine in St. Andrew's Dock and was so terribly injured that he had to undergo amputation of both legs and of both arms. The operation, which was performed in the Hull Royal Infirmary by Mr. E. Harrison, was quite successful and Barry made an uneventful recovery. Mr. Harrison communicated with Mr. C. H. Wilson concerning the case and a subscription was opened for providing Barry with artificial limbs. The [illegible] becoming aware of the case, wrote [illegible] id to supply the artificial lim[illegible] nerous offer was promptly accepted and the money already subscribed for the purpose is now, with the consent of the donors, to be devoted to enabling Barry to obtain some light employment. The Surgical Aid Society deserves every credit for its act.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 12, 1903.

Referred Pain.

It has been universally recognised for many years that irritation of the peripheral extremity of one branch of a nerve may cause pain to be felt, not at the place where the irritation exists, but in the area of distribution of some other branch of the same nerve or nerve root. Familiar examples of this "sympathetic" or "referred" pain are numerous. Caries of one tooth may cause aching of other teeth on the same side, or the pain may be attributed to an area supplied by some other branch of the fifth nerve. In early disease of the hip-joint the child may feel the pain, not in the affected articulation, but in the knee of the same side, and many hospital surgeons have seen children who have been brought for treatment with a poultice, or some other equally efficacious application, on the knee, while the only lesion present has been in the hip. Hilton many years ago laid the foundation of the doctrine of "sympathetic" pain when he showed that some obscure pains occurring in various morbid conditions could be thus explained. Dr. Henry Head has done good service more recently in calling attention to this pain reference and by systematising our knowledge on the subject, for he showed that each cutaneous nerve was associated with the nerve-supply of certain internal organs and structures, and thus he laid down definite rules for the attribution of referred cutaneous pain to its proper source. Various explanations have been advanced to account for this transference of pain. According to one theory it is explicable simply by induction of a current in adjacent fibres in a manner comparable to the electrical induction in two adjacent but unconnected wires. Certain physiological experiments appear to favour this explanation but it is probably not correct. According to another explanation the nervous centre, spinal or cerebral, which receives the afferent impulses is so unduly excited that in its disturbed condition it attributes the afferent impulse to the wrong afferent nerve. Yet another theory suggests that the transference takes place in a still higher plane—namely, in the sensorium itself. A point of very great importance in endeavouring to distinguish between these rival theories is that in some cases there is no true reference of pain but the "sympathetic" cutaneous area is hyperæsthetic. This is most easily explicable on the idea that the corresponding spinal centre is disturbed by unusually severe afferent impulses which render it unduly sensitive to ordinary impressions.

The point of origin of the primary afferent impulses may be a muscle, a joint, a bone, or a viscus. In this connexion it is of interest to observe that most of the abdominal viscera are quite incapable of giving rise to the ordinary sensation of pain. In The Lancet of August 22nd we published a lecture by Mr. C. W. Mansell Moullin who brings out this point very clearly, for he shows that ulceration and gangrene of the stomach and intestine need not of themselves give rise to any painful sensation, that the bowel may be cut and sutured, and that operations may be performed on many other abdominal viscera without causing any pain, but that the abdominal wall is extremely sensitive, an inflammation of it or traction on it causing acute pain. He further showed that in inflammation of the appendix it is very common to find patches of cutaneous hyperæsthesia; in most cases this area is the area corresponding to the eleventh dorsal nerve, though the areas corresponding to the tenth and twelfth dorsal may also be affected. This hyperæsthesia is attributable to "reference" and thus may prove of diagnostic value in obscure cases of appendicitis. The stimuli may come from the muscles or from branches distributed to the abdominal wall, but they do not come from the peritoneum itself. So long as the inflammation is limited to the peritoneum no true cutaneous hyperæsthesia is found, and therefore when this hyperæsthesia is present it is an indication that some other structure is involved; while if it has been present and suddenly disappears but no corresponding improvement occurs in the general symptoms it may be taken as very probable that the appendix has become gangrenous and that only immediate operation can prevent general septic inflammation of the peritoneum. There is a somewhat analogous phenomenon closely allied to referred pain to which Hilton drew attention. He showed that a very close connexion exists between the nervous supply of a joint and the innervation of the associated structures—namely, the muscles acting on the joint and the skin covering it—the several nerves arising as a rule from the same nerve root. As a consequence of this intimate nervous connexion any inflammation of the joint—that is to say, of its synovial membrane—is immediately followed by a tonic contraction of the muscles acting on the joint; this causes fixation of the bones entering into the articulation and thus the pain and the increase of inflammation are avoided which would surely follow the continued movement of the joint. This muscular spasm cannot be regarded as entirely voluntary, for though it may diminish it does not altogether disappear during sleep and, indeed, it may first appear at a time when there is no distinct pain in the joint, the articular inflammation manifesting its presence through the reflex arc before it reveals itself to the sensorium.

We find an exactly similar evocation of muscular rigidity when the peritoneum is inflamed, as Mr. E. Stanmore Bishop points out in this issue of The Lancet. The whole peritoneal cavity, he suggests, may be looked upon as an articulation designed for easy movement between the intestines and the abdominal wall. The nerve-supply of the peritoneum is intimately associated with the nerve-supply of the abdominal muscles and of the superjacent skin. The earliest intimation of a peritonitis is afforded by rigidity of the muscles of the abdominal wall. If the peritoneal inflammation is widespread the area of rigidity will be widespread also, but if the peritonitis is localised only the muscles immediately over the inflamed area may be involved. The practical importance of this phenomenon is obvious: it is a definite sign of peritonitis at the earliest possible stage and at a time when surgical intervention may prevent such extension of the disease as would render treatment hopeless. It is important to bear in mind that this abdominal rigidity is only a temporary sign; if it be disregarded the absorption of toxins from the peritoneal cavity will surely occur and the muscular spasm will be replaced by paralysis. It will then in all probability be too late to save the patient's life. The importance in diagnosis of this intimate connexion between deep-lying structures and the cutaneous and muscular nerves of the part is obviously great and the value of such signs as localised pain and tenderness is especially appreciated by those who devote much attention to abdominal surgery. Yet there is some liability that mistakes may be made in diagnosis by ignoring other possible explanations of pain which may belong to another department of medicine. Mr. **STANMORE BISHOP**, in the paper already mentioned, gives a very good example of this. A pelvic pain, worse at menstrual periods, had lasted for 20 years and was supposed to be connected with ovarian disease, but it persisted after both ovaries had been removed. Later it was found that a calculus was impacted in the lower end of the left ureter and when this was taken away all pain ceased.

◆

Privileged Medical Communications.

IN a paper read at a recent meeting of the Massachusetts Medical Society Dr. **DAVID W. CHEEVER** of Boston recently reviewed and compared the provisions of the law in various American States and in some European countries, particularly in Great Britain, with regard to the giving of evidence by medical witnesses. The difficulties which not infrequently arise when a medical man is asked in a court of law to divulge matters which have become known to him in his professional capacity are felt by the medical profession throughout the world, but the extent to which the law compels, or endeavours to compel, the giving of such evidence varies in different countries as well as in different classes of cases. It varies also in its incidence, presumably in all countries, according to the degree of sympathy which the judge may feel towards a witness placed in an unenviable position. In dealing with the question from the medical point of view Dr. **CHEEVER** suggests rules which to us hardly seem to cover all possible contingencies. He proposes that "It shall be considered unprofessional for a physician to divulge anything confided to him by a patient unless (1) with the patient's consent; (2) to defend himself when accused; (3) to expose crime. In all other cases, such professional confidences shall be classed as 'privileged communications.' It shall be a question of honour whether the physician shall feel it his duty to repeat such a 'privileged communication'; if he conscientiously declines he shall be protected; if he testifies it shall be before a judge in private." It will be seen from this that the broad principles upon which Dr. **CHEEVER** would desire the medical man to base his conduct practically coincide with those by which the medical man is guided in this country.

The matter is one, however, in which it is easier to lay down broad principles than it is to frame definite rules to meet more or less concrete instances. The confidences of a patient are of two kinds: he may impart to a medical man who is attending him a secret which has nothing to do with his case, as he would to any other person in whose discretion he had confidence, and on such an occasion the medical man will be able to guide his conduct by the rules which would direct that of any other honourable man in whom trust might be laid. In a larger number of instances, however, the secret of the patient held by the medical man is known to him in his professional character only, and is either the result of his skilled observation or is confided to him as part of the history of the case. This is the professional secret properly so-called to which privilege should attach of a different character, although in relation to both classes of case the conduct of the medical man will be regulated by the same dictates of honour and discretion. With regard to both classes it must be borne in mind that the court of law is not the only place in which a secret may be revealed, and that absolute silence upon the subject at all times and in all places will in a very large number of instances prevent all possibility of the medical man being involved in a legal inquiry—that is to say, no one will be aware that he has the custody of a secret unless either he or the patient has given an intimation to that effect. But it may become known to third parties that the medical man is acquainted with matters which are relevant to impending legal proceedings, and if his evidence is then sought the principles which should guide him in refusing or giving it will have to be considered. As our quotation from Dr. **CHEEVER'S** paper implies, such proceedings are of two kinds, criminal and civil. Generally speaking, it is the duty of every citizen to assist in securing the conviction of an offender against the criminal law and the medical man must consider his duty as a citizen. He must also reflect whether by standing aside he will render himself the accomplice of the criminal. On the other hand, he is not called upon to play the detective, although to a certain extent he must be guided by circumstances even in this. For example, a practitioner in a rough district may find himself dressing injuries which, coupled with knowledge already acquired by him, leave little doubt in his mind that the patient is a person sought for by the police. It is easy to say that such a patient's secret should repose safely in the medical man's custody where the alleged crime has been of a petty nature, such as drunkenness or poaching or even a felony of minor gravity, but is the medical man to keep silence where he is strongly of the opinion that his patient has committed a murder? For such occasions it is not easy to do more than to lay down the principle that the secret of the patient should be jealously guarded in the patient's interest by his medical adviser, so long as to do so is compatible with the discharge of duty towards the community. It will be remembered that where a medical man attends a woman who, in his opinion, has been the victim of an illegal operation he is not blamed because he assists in procuring the detection and punishment of the crime, although to do so necessarily includes the denunciation of his patient as an accomplice in it. Were he not to do so he would risk being suspected of personal complicity, a danger to which no medical man could reasonably be expected to expose himself.

Among civil cases there are many, partaking of the nature of criminal trials in that charges of fraud are involved, in relation to which the medical man may well be guided by the same principles which regulate his conduct where a prisoner's guilt is the subject of inquiry. He is to respect his patient's secret so far as he can do so consistently with his duty as a citizen. He is not a detective but he is not called upon to risk being accused of complicity in fraud. Where there is no inquiry into anything of a criminal nature the medical man will find less in the circumstances of the case to modify and to direct his discretion and conduct. The secret intrusted to him must, however, still be regarded as the patient's secret to be jealously kept in the patient's interest. This will be found a principle of more general application than the rule suggested by Dr. CHEEVER that the confidence should only be revealed with the patient's consent. In many cases the patient is dead and not only is no consent to the revelation obtainable but none can be implied from the nature of the matter imparted. And yet it is conceivable that the medical practitioner may hold it not only permissible but his duty to break a silence which would discredit one whose good name is in his keeping. An issue may be raised, for example, in which a woman's reputation for chastity may be involved, or the question may be whether a man at a time when he sought medical advice was suffering from a venereal disease. A variety of similar instances can be imagined in which the medical man might be asked to defend or to attack a reputation. If we lay it down, therefore, as a general principle that the patient's secret should be rigorously kept in the patient's interest, laying stress upon the point that it is the patient's interest that must primarily be regarded, we can then leave particular circumstances to modify individual cases. Such circumstances would include the amount of injury likely to be suffered by strangers or by the medical man through the strict maintenance of the secret, and their effect must be left to the consideration of the person most concerned. The law is administered by men who themselves may have secrets of their own lives intrusted to their medical advisers, and judges will not be likely to press too hardly where the refusal to speak is made upon reasonable and honourable grounds.

◆

National Physical Deterioration.

ON Saturday, Sept. 5th, it was officially announced that the Lord President of the Council had appointed a committee to make a preliminary inquiry into the alleged physical deterioration of certain classes of the community. The committee consists of the following seven gentlemen who are all well known as experts in their several departments :— Mr. ALMERIC FITZROY, C.V.O., clerk to the Privy Council; Colonel G. M. FOX, C.B., formerly head of the Army Gymnastic School; Mr. J. G. LEGGE, Chief Inspector of Reformatory and Industrial Schools; Mr. H. M. LINDSELL, Principal Assistant Secretary to the Board of Education; Colonel GEORGE T. ONSLOW, C.B., Inspector of Marine Recruiting; Mr. JOHN STRUTHERS, C.B., Assistant Secretary to the Scotch Education Department; and Dr. J. F. W. TATHAM, of the General Register Office, Somerset House. We are informed that the Government has decided to appoint this committee in fulfilment of a promise by the Duke of DEVONSHIRE last July in the course of a debate in the House of Lords, which promise was to the effect that the inquiry asked for at the time should be made if necessary, and that as a preliminary step the opinion of the medical profession should be taken as to the necessity for such an inquiry and as to its scope. Accordingly the opinion of the Royal College of Physicians of London and of the Royal College of Surgeons of England was asked for and obtained. The replies of the Colleges must be regarded as confidential, but it is clear from the appointment of the commission that both corporations considered that an expert inquiry into a most important subject might well be made.

The question of the alleged physical deterioration of the masses has been for some time before the public. It was much brought into prominence by an article in the January number of the *Contemporary Review* entitled "National Health: a Soldier's Study," from the pen of Sir FREDERICK MAURICE. In our editorial remarks in THE LANCET of Jan. 31st, we reviewed at considerable length the article referred to and on several occasions since then we have reverted to the subject. The acute stage of controversy was not, however, reached until Sir WILLIAM TAYLOR, the Director-General of the Army Medical Department, published his memorable report on the physical degeneration of the recruits presenting themselves for admission into the army. Since the issue of that report as a Parliamentary paper the daily press has been flooded with vague statements as to the deterioration of the physique of the labouring classes, while the usual crop of more or less silly and impracticable suggestions for dealing with the evil, the actual existence of which is, of course, accepted without question, has followed. In our own remarks from time to time concerning this important question we have been careful to make it clear that, whilst we raise no objection to the appointment of the commission asked for by Sir WILLIAM TAYLOR (although we fail to see what practical results are likely to be attained), we cannot accept the evidence which has been hitherto advanced as *proving* any general deterioration in the national physique. It remains to be seen what course the committee now appointed will think it best to pursue. It will presumably be afforded the fullest facilities for investigating and probing to the bottom the whole system of recruiting for the army, and, if we mistake not, this is a part of the War Office machinery which will be found to be in need of amendment. The inquiry cannot be otherwise than a prolonged and intricate one, as it will certainly prove a most important one. For ourselves we are content to await the result of the deliberations of the committee with patience and with confidence. We hope that the public will be persuaded to adopt a similar attitude, and will not take it for granted, upon ignorant or irresponsible statements, that the vitality of their countrymen is hopelessly lowered.

Annotations.

"Ne quid nimis"

THE ETIOLOGY OF SLEEPING SICKNESS

THE etiology of sleeping sickness or negro lethargy has for some time attracted considerable attention The endemic area of the disease is strictly confined to that part of western equatorial Africa which lies between and includes the valleys of the Senegal on the north and of the Congo on the south, and this peculiar geographical distribution naturally suggested a local cause The malady has *never been known* to affect anyone who has not at one time or another been resident within this area The fact, however, that the disease may develop some years after the endemic area has been quitted suggests that the cause is of such a nature that it may be carried away from that area and remain latent as regards its disease producing qualities for a considerable period Sir Patrick Manson has shown that filaria perstans so far as is known, is limited in geographical distribution to western equatorial Africa—that is to say, it can be acquired there only , and he has also demonstrated that the parasite may continue in active life for many years after its human host has left the country in which alone it could have gained entrance to his system He suggested, therefore, that filaria perstans might be in some way responsible for sleeping sickness, and supported his contention by the statement that he had found the nematode in the blood of a considerable number of cases of the disease At the same time he admitted that there were many difficulties in the way of establishing this hypothesis A commission was sent out to Uganda by the Royal Society in May, 1902 and one of its members, Dr Aldo Castellani, reported that, when examining a specimen of cerebro spinal fluid taken by lumbar puncture during life from a well marked case of sleeping sickness, he found a living trypanosoma [1] He made further investigations and found the organism in 70 per cent of the cases examined Combining this result with his previous experiences, he suggested as a working hypothesis that sleeping sickness is due to the species of trypanosoma which he had demonstrated, and that, at least in the last stages, there is a concomitant streptococcus infection which plays a certain part in the course of the disease Another commission was then despatched consisting of Lieutenant Colonel David Bruce, F R S , R A M C , and Dr David N Nabarro They arrived in Entebbe, Uganda, on March 16th of this year and a "progress report" on sleeping sickness in Uganda, dated from Entebbe, May 29th, has now reached us From this we learn that the method of examination was the one adopted by Dr Castellani Ten cubic centimetres of cerebro-spinal fluid were taken by lumbar puncture the fluid was centrifuged and the whole of it was subsequently poured away except the little which clung to the bottom and sides of the tube The sediment was stirred up in this and examined under the microscope The trypanosomes were never very numerous In some cases only one was found after looking through several slides , in others two or three might be seen in one field The organisms were found in every one of 40 cases examined, the patients being in all stages of the disease It was further shown that they were present in the cerebro spinal fluid of cases occurring in other districts than Uganda The next question the commissioners set themselves to answer was Does the cerebro spinal fluid of the general population contain trypanosomes? This was conclusively answered in the negative It was also demonstrated that the parasites were present in the blood of all the patients suffering from the disease In this connexion an interesting point arose On the west coast of Africa during the past two years trypanosomes have been found in the blood of several persons not suffering from sleeping sickness , they have not been confined to the blood of natives but at least three white people have been affected It would seem, therefore, either that the trypanosomes found in sleeping sickness and those found in "trypanosoma fever" belong to different species and give rise to different diseases, or that, being identical, when they are confined to the blood they give rise to slight feverish symptoms, whereas if they gain entrance to the cerebro-spinal fluid they cause sleeping sickness The commissioners consider that this question cannot be definitely answered at present but hope that a solution will eventually be found The peculiar geographical distribution of sleeping sickness has already been alluded to and the question naturally arises, Does this distribution coincide with the distribution of any biting insect? Inquiries have been instituted to ascertain whether any species of tsetse fly is peculiar to the affected districts but sufficient time has not yet elapsed to give a reliable answer, though the information already received tends to the affirmative Experiments are being made in order to ascertain whether the Uganda tsetse fly can carry the trypanosoma from animal to animal , one of these experiments has already proved successful The etiological chain, therefore, appears practically complete, but before it can be accepted in its entirety a further report from the commissioners must be awaited In conclusion, we would refer to one other matter which is mentioned in this "progress report" and which to our minds is of considerable importance Sleeping sickness is extremely prevalent in Uganda and has caused the deaths of many thousands of the natives The flies which conveyed the disease to a monkey were caught in the vicinity of the hut tax labourers' camp These men to the number of thousands go to Entebbe and work for the Government for one month in lieu of paying hut tax They live in rudely built grass huts near the shores of the lake about a mile from Entebbe along the Kampala road The Prime Minister of Uganda informed the commissioners that he considered the hut tax system as the chief cause of the spread of sleeping sickness all over the land This suggestion is well worthy of investigation As the natives go to the infected district from various parts of the country and are thus liable to be bitten by the tsetse flies it is not at all improbable that they carry the germ of the disease away with them to other districts We shall await the publication of a further report from the commissioners with interest They have undoubtedly already supplied much valuable and suggestive information as to the etiology of the disease

NEW ROMAN OCULIST'S SEALS

WE discussed last week at some length the four lined inscription upon a new Roman oculist's seal but omitted to say anything about "diapsoricum," the second line upon the seal "Diapsoricum" is probably also the base of a *collyrium* termed "psoricum" The longer word occurs upon more than a score of these seals, the shorter one upon two Classical medical authors do not help our research much in endeavouring to ascertain what "psoricum" was Formulæ for it are preserved by Galen, Celsus, and others, but they differ in the ingredients forming the mixture When a remedy commences with the syllable "dia," it generally means that it was the chief base of the *collyrium* In addition to a formula for "psoricum" Galen and Celsus, in describing other compound collyria, state that they contained psoricum, but to no substance do they give the title of "diapsoricum" and thus so far the classics fail to tell us absolutely what "diapsoricum" was Strange to say, Marcellus Empiricus[1] does give us a diapsoricum collyrium but it does not contain psoricum, but white pepper, Sicilian saffron, myrrh, amidon, opium, and Judean balm; perhaps he extended this recipe as a substitute for diapsoricum. Capitaine Esperandieu in his essays upon oculist seals has fully discussed the question of psoricum, concluding that it consisted of cupric oxide and was especially used as a remedy for a condition termed "scabrites oculorum." It is also recommended for "claritas" (clearing the vision) and for defective vision. It will be noted that the difficulties of the subject are not diminished by the Rugles seal, because it places diapsoricum among the various delacrimatoria which appear to have possessed a double virtue, in some cases being used to provoke tears, and in others to stanch them, these latter being cases of epiphora or lacrimatio. As to whether, on the Rugles seal, diapsoricum was to produce, or to diminish, lacrimatio, we know not. It is the first time that it has been found suggested for such purpose instead of the usually recommended myrrh or balm.

---

[1] THE LANCET, June 20th, 1903 p 1735

[1] De Medicam , vol viii , p 69

THE PROGRESS OF LUNACY IN ENGLAND AND WALES.

IN the fifty-seventh report of the Commissioners in Lunacy it is stated that there were in England and Wales on Jan. 1st, 1903, 113,964 notified lunatics, being 3251 in excess of the number on the same day in 1902. This increase for 1902 contrasts with one of 2769 for 1901 and 1333 for 1900. The average annual increase in the number of lunatics under official cognisance for the five years ending Dec. 31st, 1902, was 2398. Thus the increase in the year 1902 exceeded the annual average increase in the preceding five years by 853. The last returns show an increase in the county and borough asylums of 3749 patients over the number for Jan. 1st, 1902, in registered hospitals of 27, in Broadmoor Asylum of 73, in the metropolitan district asylums of 62, and an increase of 22 patients in "single" care. On the other hand, the returns show a diminution of 291 in those detained in the metropolitan licensed houses, of 177 in the provincial licensed houses, of 24 in naval and military hospitals, of 140 in ordinary workhouses, and of 50 in the number of outdoor paupers. The pauper patients (47,102 males and 56,692 females) have increased in the county and borough asylums by 3628, in registered hospitals by 3, and in the metropolitan district asylums by 62; but against these must be set a decrease of 388 in metropolitan and provincial licensed houses, 140 in ordinary workhouses, and of 50 among outdoor paupers. The decrease in the number of these patients in licensed houses was mainly due to the opening of the London County Asylum at Horton and the transfer to it of patients from those houses. As regards the ratio of the insane to the population the Commissioners point out that the aggregate of lunatics under official cognisance on Jan. 1st, 1903, gives a ratio of one to every 293 persons of the general population of England and Wales. The rate of increase of the insane in proportion to the general population is shown in Table II. of the report. Thus in 1879 the ratio of lunatics to the general population was 1 to 363, in 1889 it was 1 to 337, and in 1899 it was 1 to 303. The proportion has continued to increase steadily ever since and it now amounts to 1 in 293. Excluding from consideration the idiot establishments, which show but little variation in admissions, recoveries, and death-rates, it is found that in all other institutions the admissions during the past decade have risen from 17,823 in the year 1893 to 22,851 in the year 1902. The total number of patients discharged as "recovered" were 10·2 per cent. of the average number resident in 1893 and 9·03 per cent. in 1902. The deaths, which in 1893 amounted to 6609, or 9·86 per cent. of the average number resident, rose to 9266 in 1902, or 10·55 per cent. of the average number resident. At any period and in any year of the series the recovery rate has been higher among females than among male patients, while *per contra* the death-rate of females has been invariably higher than that of males. The etiological factors in the production of mental disorder are often complex and difficult to classify and the figures given have only a relative value. "Previous attacks" of insanity were stated to have occurred in 16·2 per cent. of males and 23·1 per cent. of females admitted during the five years 1897 to 1901, whilst "heredity" was ascertained in 18·8 per cent. of males and 24·6 per cent. of females. Alcoholic intemperance was assigned as the cause of insanity in 23·1 per cent. of males and 9·6 per cent. of females. There are about 12 per cent. of the inmates of asylums suffering from epilepsy, this being the average met with in the visits of the Commissioners. The proportion of male epileptics exceeds that of females to a marked extent—about 30 per cent. The male general paralytics admitted, however, outnumber the females in the proportion of about one to four or five. Thus during the five years 1897 to 1901 the average annual number of general paralytics admitted to all institutions was 1307, comprising 1069 males and 238 females. Of the total number of persons admitted to institutions for the insane "nearly 25 per cent. are," says the report, "known to be suicidally disposed. ...... This large proportion of suicidal patients contrasts with the comparatively small number of deaths from suicide of patients under care, and the contrast is a striking commentary upon the necessity of supervision and the admirable manner in which it is universally carried out." The weighty statistics collected by the Commissioners serve to illustrate several points of importance. The falling recovery rate during the past quarter of a century, the slightly enhanced death-rate, and the steady growth and increase of the insane at a rate faster than the growth of the general population are matters which must engage the thoughtful attention of the medical profession, of legislators, and of public authorities.

THE SCHOOL BOARD FOR LONDON AND LECTURES ON HEALTH.

WE have from time to time expressed our views that the School Board for London was in the habit of teaching a great many more subjects than could reasonably be included under the heading of elementary education, but for what must be among the last official acts of the Board we have nothing but praise. The evening continuation schools committee has sanctioned the opening by Dr. R. J. Collie of 20 experimental classes on health. Dr. Collie has been for some years medical superintendent of the ambulance and home-nursing classes of the Board and he has been struck with the importance of teaching the poorer section of the population such things as the value of fresh air, the importance of a cheap and nutritious diet, and the gain of living in "physiological righteousness." The classes are to be held in different districts of London and the lecturers will be recognised medical men. From the syllabus of the lectures which Dr. Collie has forwarded to us we see with pleasure that the lectures are to be made as practical as possible and are to be illustrated by experiments. The subjects will be the hygiene of the house, air and ventilation, clothing, the prevention of consumption, exercise of personal hygiene, food and water, the prevention of the spread of infection, the care of infancy, ill-health and dress in women, and cooking. No one who has not worked among the poor can form any idea of the excessive ignorance which exists among them regarding the feeding of infants and children, the cooking of food, and the necessity for ventilation. The wife of the average working man has no idea of cooking food as a rule. She simply "does it." She does not know how to prevent the spread of infectious disease and in such a common complaint as measles she considers that her child is perfectly able to go out as soon as the rash has disappeared, a proceeding which of course in many cases leads to pneumonia. We are quite aware that it is exceedingly difficult for those living in the heart of a great city to obtain adequate house room for facilities for practising hygiene, but even those who live under the worst possible conditions could do something more than they do in practice to live a less unhealthy life than is the custom. We therefore hope that Dr. Collie's lectures will meet with practical success.

AN ADAMLESS EDEN.

THE increasing excess of male over female deaths in Chicago is becoming a matter of some importance. The bulletin of the health department for the week ended August 22nd, which has just been issued by Dr. Arthur R. Reynolds, commissioner of health of the city, shows that there were 483 deaths reported, which is exactly the same number as for the previous week. Of these, 291 were males and 192 were females, an excess of 50 per cent. of male deaths. "In 1901 this excess was 23·4 per cent.; in 1902 it was 29·5 per cent.; during the first six months this year it was 37·4 per cent., and now 50 per cent. more males than females are dying. In another 20 years—*Place aux dames!*" These are Dr. Reynolds's words and undoubtedly they will seem to be justified if the present position is maintained or aggravated in subsequent bills of mortality.

THE DISTRIBUTION OF PLAGUE.

THE report of the medical officer of health of Cape Colony for the week ending August 15th states that no case of plague was discovered throughout the colony during the week in question. Dead rats, however, were found at East London and at Queenstown. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Sept. 4th states that for the week ending Sept 3rd there were 28 cases of bubonic plague and 25 deaths from the disease. With regard to Australia, our correspondent states that no cases of plague have been reported from any of the States during July. The Brisbane Board of Health has declared the ports of Brisbane and Fremantle free from plague from August 8th. In Sydney occasional rats caught are found to be plague-infected and the work of rat destruction is conducted vigorously. Our correspondent in Constantinople reports that limited outbreaks of plague have occurred near the Turco-Persian frontier and in the Lebanon.

THE INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

THE International Congress of Ophthalmology, which is held every five years, is to meet in 1904 in Lucerne. From an official circular which we have received the authorities of the congress appear to have taken a new departure in their arrangements and to have decided upon a course of action which seems to us to be worthy of imitation at other congresses of a like nature. No papers are to be read, for, as the committee very rightly says, papers are much more easily understood by being read in the scientific journals and the multiplicity of papers which are sent in to a congress almost entirely precludes discussion. Any member, therefore, who wishes to contribute a paper is requested to send it with the admittance fee before May 1st, 1904, to Professor Mellinger of Basle. The paper must be written in one of the four official languages, English, French, German, or Italian. The papers will be printed and grouped according to their subjects and this printed report will be sent to each member with his admission card at least two weeks before the date appointed for the opening of the congress. At the meetings the authors of the papers will be requested by the president to state the conclusion of their respective papers in a few words and the discussion will then commence. Members present who are interested in the subject of the paper will, of course, have had the opportunity of reading the paper before the opening of the congress. The discussions will be printed and published at the close of the congress and possibly papers received too late to be printed before the opening of the congress will also be discussed and printed with the discussions. Only one subject will be officially discussed by the congress—namely, the Question of Indemnity as Regards the Value of an Eye Lost or Injured. Upon this matter Professor Axenfeld of Freiburg, Dr. Sulzer of Paris, and Dr. Wurdemann of Milwaukee have been requested to draw up a report. The afternoons of the congress sittings will be devoted to practical demonstrations. The congress will be held on Sept. 19th, 20th, and 21st, 1904. The president is Professor Dufour, the vice-president Professor Pflüger, the secretary and treasurer Professor Mellinger, and the honorary president Professor Snellen of Utrecht, who was president of the last congress. Another honorary president is Dr. Deucher, the President of the Swiss Confederation. Further information can be obtained from the correspondents for the United Kingdom: Mr. W. H. H. Jessop, 73, Harley-street, London; Dr. George Mackay, 20, Drumsheugh-gardens, Edinburgh; and Mr. H. R. Swanzy, 23, Merrion-square, Dublin.

ON TOBACCO-ALCOHOL AMBLYOPIA.

IN recent years the pathogenesis of the toxic amblyopias in general, and particularly the alterations which are produced in the ganglion cells of the retina by the action of methyl alcohol, quinine, and filix mas have attracted much attention. Accounts of some of these researches have been from time to time published in these columns during the past two years.[1] In the *American Journal of the Medical Sciences* for August Professor G. E. de Schweinitz and Dr. D. L. Edsall, both of Philadelphia, contribute an interesting account of seven cases of toxic amblyopia which were studied with the special object of determining the nature of the toxic changes directly or indirectly set up by alcohol, tobacco, or other toxic agent. Writing in 1900, Professor Schweinitz said: "It is quite possible that nicotine, or one or more of the many principles present in tobacco smoke, liberates some toxic influence in the system which must be held accountable for the disease, which, in other words, depends upon a species of auto-intoxication." Sachs maintained that even in pure cases of tobacco amblyopia certain chemical derangements occur first in the stomach with a resulting transformation of the normal gastric acids into acids of the fatty series. These acids having combined with the nicotine and other injurious substances of tobacco, the product acted far more deleteriously than the simple tobacco derivatives (bases) themselves, constituting in themselves the toxins which produced amblyopia. In order to ascertain the presence or otherwise of such toxins in patients the urines of seven persons suffering from tobacco-alcohol amblyopia were submitted to thorough analysis for varying periods of time. The results obtained indicated that alcohol and tobacco acted not merely in a direct fashion on the retina but that they also produced gastric changes whence arise secondary toxic products, the action of which was still more deleterious. The following two cases are cited as typical ones. The first patient was a male, aged 46 years, by occupation a negative retoucher. He applied for treatment on account of failing vision in September, 1902. He was a fairly healthy man except for some gastric disturbance and he was free from syphilis. He had been a "moderate smoker" for many years and had been accustomed to drink beer and whisky, but had not been indulging in a dissipation or debauch. In the spring of 1902 he noted blurring of vision which seriously interfered with his occupation. Ocular examination showed clear media and an oval area of pallor in each optic disc on the temporal side, most marked in the left eye. The fields of vision were of normal outline and there was a faint negative scotoma in the centre of each ocular field. He was treated for a month with strychnine and directed to discontinue tobacco and alcohol, but no improvement followed. Examination of the gastric contents after a test meal showed absence of free hydrochloric acid and the presence of a lot of tough mucus indicating gastritis. The urine showed a considerable amount of indican and more urobilin than normal. The patient was placed upon suitable diet to correct the gastritis, all medicine was discontinued, and at the end of six weeks the visual condition had returned to the normal as regards acuity and the scotomas had disappeared. The second case, that of a man aged 36 years, an inveterate smoker of great quantities of cigarettes and a free drinker, developed a more marked amblyopia. The urine showed marked excess of indican and of urobilin. Gastric disturbances similar to those in the previous case were met with. Regulation of the diet and abstinence were followed by cure in a few weeks. There was no albuminuria or glycosuria in any of the seven cases, but all exhibited urobilinuria and indicanuria, as well as gastric and hepatic disturbance of function.

---

[1] Blindness due to Drinking Bay Rum (THE LANCET, July 13th, 1901, p. 93), and Production of Amblyopia by Alcohol (THE LANCET, March 29th, 1902, p. 911).

PANCREATITIS IN MUMPS.

AS the pancreas closely resembles in structure and function the salivary glands it might be expected that it would be involved in the metastases of mumps. However, very few observations have been recorded on the point. At the meeting of the Société Médicale des Hôpitaux of Paris on July 30th M. Simonin, an army surgeon, read notes of ten cases of pancreatitis which had occurred in 652 cases of mumps treated in the hospital of Val-de-Grâce from January, 1899, to June, 1903. The symptoms of pancreatitis appeared from the first to the twelfth day of the disease, generally from the third to the sixth, and lasted from two to seven days. Thus the inflammation of the pancreas ran a similar course to that of the salivary glands. In four cases there were also genital metastases. The principal symptom was pain between the xiphoid cartilage and umbilicus which sometimes radiated along the costal arches and even into the interscapular, dorsal, and lumbar regions. Light pressure in the pancreatic region was unbearable and deep palpation was impossible, so that the presence of a swelling could not be ascertained. Nausea or vomiting was rarely absent. Vomiting sometimes was incessant and provoked by taking the smallest quantity of liquid or by slight pressure. Sometimes like the pain it occurred in crises. Pyrexia was inconstant and was absent in four cases out of the ten. The axillary temperature generally ranged between 100·4° and 102·2° F., rising progressively for three days and falling in a similar manner. Diarrhœa occurred in half of the cases; it was not accompanied by marked abdominal pain. There was neither albuminuria nor glycosuria In two cases epistaxis occurred at the height of the pancreatitis. The following is an outline of two of the cases. A soldier, aged 22 years, was seized on May 13th, 1901, with violent epigastric pain which radiated into the back and loins. There was nausea during the whole evening. The temperature was 99·1°. On the following day both parotid glands were swollen and painful and there were diffuse erythema of the throat, anorexia, and constipation. The epigastric pain persisted and radiated under the left false ribs. Epistaxis occurred twice. On May 17th the epigastric pain disappeared and the right epididymis became swollen. The parotid swellings still persisted. On May 20th all the symptoms disappeared. In another case a soldier, aged 21 years, had on March 25th, 1903, a slight attack of mumps on both sides with a little pyrexia. On the night of the 28th there was severe epigastric pain. On the following morning he vomited repeatedly, the temperature rose to 101·1°, and the epigastrium was very tender. On the 30th the temperature was 102·2°, the epigastric pain persisted, and there were nausea, bilious vomiting, and profuse diarrhœa. On the following day the vomiting ceased and the epigastric pain diminished. Two days later recovery was complete. In a communication to the Société Médicale des Hôpitaux of Paris on March 5th, 1897, M. Cuche stated that in an epidemic of mumps he found the pancreatic region tender in most of the cases (20 out of 26). Sometimes this symptom coexisted with redness of the throat and pyrexia and was the only glandular manifestation of the disease.

THE ORGANISATION AND ENDOWMENT OF SCIENCE.

SIR NORMAN LOCKYER in his address as President of the British Association, which we publish in this issue of THE LANCET, brings forward some very forcible arguments in support of the absolute necessity, if this country is to maintain her proud position among nations, that our scientific knowledge should be properly organised. In clear phrases, supported by equally clear figures, he shows the grave lack of university education under which this country lies when compared with our great rivals in the world of commerce—Germany and the United States—while he makes an eloquent plea for the proper endowment of scientific research by the State. Sir Norman Lockyer's words will commend themselves to all our readers, while to many of his views our most prominent thinkers have already and publicly subscribed. Is it too much to hope that something will be done? If the British Science League, the formation of which he suggests, should come into being and should find itself in a sound financial position, we believe that practical good might follow. Such a league, by persistently bringing before the nation the danger of our national apathy towards scientific work, might secure a proper recognition of modern educational systems and of the value of scientific research.

CANCER RESEARCH.

THE honorary treasurer of the Cancer Research Fund has made the gratifying statement that Mr. William Waldorf Astor, in response to the appeal made by Mr. Balfour at the first annual meeting of the fund, has forwarded a cheque for £20.000 to the Fund. The total sum required is £100,000 and Mr. Astor's contribution, together with other smaller sums, has brought the total up to £75,000, so that £25.000 still remain unsubscribed. Mr. Astor's generous gift will, we hope, induce others blessed with this world's goods to make up the deficit. The sum required is not much if divided among the population of these islands—in fact, it is only 1*d*. per head of the population of London. But scientific research does not appeal to the ordinary man, as Sir Norman Lockyer clearly points out in another column. Liverpool has set a magnificent example to other cities in the matter of endowments for medical research, and though, perhaps, the possibilities of preventive medicine appealed to the merchant princes of Liverpool primarily because of the commercial relations which malaria and kindred diseases have with foreign and colonial trade, yet their generosity is now truly altruistic. We wonder that the example is not more followed. Cancer is a disease which has no commercial side, but which affects everyone from the highest to the lowest. Little is known of its nature and methods of "cure" are hardly more advanced than they were at the beginning of the last century. Once the cause of cancer is discovered a great step will have been taken towards the attainment of a successful treatment, and we hope that the Cancer Research Fund will not have much longer to wait for its sorely needed endowment. Mr. Astor's munificence leaves a quite inconsiderable sum for the public to supply when the interest of the public in the work is considered.

THE PAYMENT OF PUBLIC VACCINATORS AND OF VACCINATION OFFICERS.

THE President of the Local Government Board has appointed a departmental committee to inquire and to report with regard to: (1) the payments at present made under the Vaccination Order, 1898, in respect of the remuneration, costs, and expenses of public vaccinators and vaccination officers; and (2) whether any, and if so what, alterations should be made in relation to the remuneration, costs, and expenses of these officers. The members of the committee are Mr. E. H. Llewellyn, M.P. (chairman), Mr. J. Lithiby, Dr. R. Bruce Low, and Mr. W. Vallance. Mr. A. V. Symonds, of the Local Government Board, will act as secretary to the committee.

THE PREVALENCE OF SMALL-POX IN TASMANIA.

OUR Australian correspondent states that the outbreak of small-pox in Tasmania seems to be spreading. On July 29th the Tasmanian health authorities issued the following return for the week ending July 18th: total number of cases, 44; total deaths, 6; cases reported during the week, 4; deaths reported during the week, 4; and number of "contacts" isolated, 182. All the patients with the exception of 4 who were too ill to be removed have been sent to the isolation hospital All the cases have occurred at the northern end of the island. Since July 18th fresh cases have developed. Two patients have died. The Government is becoming alarmed by the extent of the outbreak and owing to the strict quarantine regulations trade is paralysed and there are practically no passengers by boat either to or from Tasmania.

THE UNIVERSITY OF GLASGOW.

CONSIDERABLE interest is being taken at the present time in the schemes which are being adopted for university extension. The main building of the University of Glasgow was erected 30 years ago, but has now become quite inadequate for present-day purposes. About £100,000 were recently expended in the equipment of the engineering, botanical, anatomical, and surgical departments, and the University Court has further determined to erect laboratories in connexion with natural philosophy, materia medica, physiology, and public health. There is, however, very little space at the disposal of the University for this purpose and what there is consists chiefly of what is just now the students' recreation ground. This it was necessary to utilise if the architectural character of the building was to be retained. But so much feeling arose when the proposal was made that the University Court accepted other plans involving the building of two blocks within the University grounds on different sites, against the express advice of their accepted architect. The plans have passed the Dean of Guild Court and operations have actually begun, but public opinion has now been expressed so strongly upon the matter that the University Court has been compelled to call a meeting for an early date with the view of reconsidering the whole matter. What is urged now is that the students' recreation ground should be utilised for building a part of a large block which will include all the laboratories at present required and which will, when completed, add many more for future purposes. If this be done it will enhance rather than detract from the appearance of the present building. This, of course, will mean that a recreation ground will require to be found for the students elsewhere, but that is not impossible. Dr. D. C. McVail suggests a way out of the financial difficulty which will necessarily arise. He points out that the proposed increase in the students' fees will mean an increased revenue of about £3000. The first charge he would make on this would be the expense of procuring a field of about 20 acres or so in the outskirts of the town. Thereafter he proposes that a sufficient sum should be expended annually on its upkeep.

MR. MOSELEY'S EDUCATIONAL COMMISSION.

A COMMISSION of inquiry into the educational systems of the United States of America and how these systems affect the national commerce and industry, which owes its existence to the enlightened liberality of Mr. Alfred Moseley, C.M.G., will start from Southampton on Oct. 3rd. The list of the commissioners, who are some 30 in number, includes many well-known authorities on general and technical education, and it seems to us certain that their intelligent examination of all that will be put before them in the United States ought to throw much needed light upon the present educational position in Great Britain. That secondary education in England is in a poor way seems undoubted, but from the lugubrious tone of some of the critics of our educational system it might be gathered that we had already fallen from our position as a first-class power. Our board schools do not turn out a large percentage of finished men of science, but the extreme depression of the pessimists is not justifiable. We think that Mr. Moseley's open-handed and patriotic attempt to gather instructive information from the other side of the Atlantic will result in the discovery that in one direction our younger generation enjoy great opportunities, as great as any offered to the American citizen. Dr. J. Rose Bradford, F.R.S., professor-superintendent of the Brown Institute, is the medical member of the commission and his report upon the curriculum of the medical student in the various American universities will be looked for with interest. It is a gratifying fact to medical men to reflect that in one branch of technical education Great Britain does herself justice. The standard of medical education in this country is as high as it is anywhere in the world, although it does not meet with the pecuniary support either from municipalities or laymen which it finds on the continent or in the United States.

ALBUMINURIA IN DIABETES.

AMONGST the complications of diabetes mellitus the occurrence of albuminuria has not generally received the attention which it merits. Many observers, however, have maintained that the presence of this symptom in diabetes is never devoid of importance while it may sometimes be of the gravest significance Professor Grube divided diabetic albuminuria into five varieties: (1) terminal albuminuria associated with diabetic coma; (2) cardiac albuminuria met with in connexion with myocardial weakness; (3) senile albuminuria of arterio-sclerotic origin; (4) functional albuminuria due to irritation of the kidneys by the saccharine urine; and (5) albuminuria associated with organic renal changes. This classification is complicated and confusing. A more simple but equally adequate classification is made by Dr. A. R. Elliott, professor of medicine in the Post-graduate Medical School, Chicago, writing in the *Journal of the*

American Medical Association of August 8th last. He maintains that with the exception of the rare cases of albuminuria produced by circulatory failure in patients of the asthenic type, the albuminuria of diabetes may, for general clinical purposes, be placed in one of two categories—toxic and degenerative. The toxic form is generally of acute onset, arising during the later stages of the severe forms of diabetes as the result of the irritation of the tubular epithelium producing hyaline degeneration thereof, and Dr. Elliott believes that the irritation is due to the presence of acid toxins in the blood and urine. This toxic albuminuria is an invariable precedent and accompaniment of coma and must therefore be regarded as of the gravest prognostic significance. Degenerative albuminuria occurs with frequency, according to Dr. Elliott, during the progress of the mild type of the disease and is of renal origin, being produced by a gradually developing nephritis which arises from prolonged hyperfunction and impairment of renal nutrition. The appearance of albuminuria in these circumstances, while of little immediate significance, is of the greatest eventual importance as indicating the intrusion of chronic nephritis into the already manifold clinical difficulties. These observations are of considerable interest and Dr. Elliott has done good service in publishing them.

POST-GRADUATE WORK ABROAD.

WE are often asked to help our readers with information concerning post-graduate work abroad and we commence to-day a short series of articles dealing with the facilities provided for the foreign medical man at some of the more important centres. Our article this week (see p. 781) deals with Paris and is written by Dr. A. A. Warden, whose pamphlet on the subject has already been favourably reviewed in our columns. Subsequent articles will, as a rule, be from the pens of our special correspondents.

THE sanitary committee of the Glamorganshire county council has instructed its medical officer, Dr. William Williams, to prepare handbills in both English and Welsh describing the symptoms of ankylostomiasis and how the disease may best be guarded against. A circular is also to be issued to medical men informing them that the investigation of material from suspected cases will be undertaken at the county laboratory.

THE annual dinner of the old students of St. Bartholomew's Hospital will be held on Oct. 1st in the great hall of the hospital. Mr. W. Bruce Clarke will be in the chair. The annual dinner of the old students of St. George's Hospital will be held at the Hôtel Métropole on Oct. 1st. Professor Clifford Allbutt will be in the chair.

WE regret to learn of the tragic death of Mr. T. A. Dodd of Newcastle-on-Tyne, who was killed on Tuesday last, Sept. 8th, by being thrown from his horse, which was frightened by a traction engine. Mr. Dodd was formerly assistant surgeon to the Newcastle-on-Tyne Hospital for Children and to the Royal Infirmary.

THE winter session at St. Mary's Hospital will commence on Thursday, Oct. 1st, at 3 30 P.M., when the prizes for last session will be presented by Sir William Broadbent and the introductory address will be delivered by Dr. V. Warren Low.

THE death, in the sixty-sixth year of his age, is announced of Mr. T. R. Jessop, F.R.C.S. Eng., for many years a prominent surgeon in Leeds. Mr. Jessop was the first professor of surgery in the Yorkshire College.

THE Bradshaw Lecture will be delivered before the Royal College of Physicians of London by Dr. E. F. Trevelyan on Nov. 5th, the subject being Some Observations on Tuberculosis of the Nervous System. The Harveian Oration will be delivered before the College on Oct. 19th by Dr. W. H. Allchin.

THE NEW REGULATIONS FOR THE NAVAL MEDICAL SERVICE.

WE were able to indicate in our Students' Number, published last week, that certain changes were imminent in the regulations for the Naval Medical Service that would, in our opinion, considerably improve the position of the naval medical officers. These regulations have now been published and we give them below, the clauses in italics being those under which reforming innovations come into force.

REGULATIONS AS TO MEDICAL OFFICERS,

In which are embodied the provisions of the Order in Council of 24th March, 1902, and 11th August, 1903.

PROMOTION.

1. An inspector-general of hospitals and fleets will be selected from [illegible] ctors-general who have in that rank— [illegible] pay service and who have not at any time [illegible] service except for reasons which the Lords [illegible] of the Admiralty regard as good and sufficient.

2. A deputy inspector general of hospitals and fleets will be selected, for ability and merit, from amongst [illegible]

3.—(*a*) Subject to the approval of [illegible] *of the* Admiralty, rank as fleet surgeon wil[illegible] cons at the expiration of eight years from the date of promotion to staff surgeon, provided they are recommended by the Medical Director-General and have not declined service except for reasons, which in the opinion of the Lords Commissioners of the Admiralty, are satisfactory.

(*b*) Special promotions from the rank of staff surgeon to that of fleet surgeon will be made, *at their lordships' discretion, in* cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one in two years; the total number at any one time of fleet surgeons holding that rank by such special promotions will not exceed six.

4.—(*a*) Rank as staff surge[illegible] subject to their lordships' approval, to surgeons at [illegible] from the date of entry, provided they are [illegible] ical Director-General, and have passed su[illegible] required after completion of *five* years from the date of entry in the rank of surgeon.

(*b*) Special promotions will be made, at their lordships' discretion, to the rank of staff surgeon i[illegible] service or conspicuous professional merit. [illegible] exceptional and not exceed the rate of one a [illegible] at any one time of staff surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of eight years' time in rank of surgeon will be dispensed with.

(*c*) When a surgeon's promotion to the rank of staff surgeon has been retarded by failure to pass the qualifying examination, he will, should he pass and be promoted, be dealt with as follows:—

He will be granted the seniority as staff surgeon he would have received had he passed in ordinary course.

He will reckon service for increase of full and half pay only from the date of appointment to full pay as staff surgeon.

If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination.

Where delay in passing the qualifying examination may be due to unavoidable circumstances, special consideration will be given.

(*d*) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the Official Navy List. Surgeons entered without competition[1] will take seniority next after the last surgeon entered at the same time by competition.

(*e*) The examination for promotion to the rank of staff surgeon will be held by the examining board to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, and naval hygiene.

Earlier promotion to the rank of staff surgeon may be granted to those legally qualified surgeons who, before entry, have held the post of resident medical or surgical officer to a recognised civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities have been favourably reported on during the time they have served in the Navy. They may be granted from six months to one year's seniority, according to the time they have held their civil appointments, but in no case will more than one year's seniority be granted. The eligibility of the appointment to count for time will be decided by the Medical Director-General.

This only applies to officers who enter by competition.

(*f*) *A candidate who at the time of passing the examination for entry into the medical branch of the Royal Navy holds, or is about to hold, an appointment as resident medical or surgical officer in a recognised civil hospital may be allowed to serve in such civil appointment provided that the period of such service after the date of entry*

---

[1] See Clause 8 of the Regulations for Entry.

into the Royal Navy does not exceed one year. Pay from naval funds will be withheld from officers while thus serving, but the time concerned will rec
list and retirea
no officer will
pleted four years service exclusive of the time spent as resident medical or surgical officer. The eligibility of this appointment will also be decided by the Medical Director-General.

RELATIVE RANK.

5. Is accorded as laid down in the King's Regulations and Admiralty Instructions.

6. *Full Pay and Allowances.*

Rank.		Daily.	Yearly.
Surgeon:		£ s. d.	£ s. d.
On entry		0 14 0	255 10 0
After 4 years' full-pay service	including service allowed by paragraph 4 (f)	0 17 0	310 5 0
After 8 years' full-pay service		1 0 0	365 0 0
Staff surgeon:			
On promotion		1 4 0	438 0 0
After 4 years' full-pay service in rank ...		1 7 0	492 15 0
Fleet surgeon:			
On promotion		1 10 0	547 10 0
After 4 years' full-pay service in rank ...		1 13 0	602 5 0
„ 8 „ „ „ ...		1 16 0	657 0 0
Deputy inspector general...		2 2 0	766 10 0
Inspector-general		—	1,300 0 0 Consolidated

On first appointment to the service medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1342 of the King's Regulations, 1899.

7. *The medical officers in charge of the following hospitals and sick*

Kong, Bermuda, Jamaica,
pe, Gibraltar, Yokohama,

	s. d.	
Inspectors general	*10 0*	*a day.*
Deputy inspectors general	*7 6*	*„*
Fleet surgeons	*5 0*	*„*
Staff surgeons	*2 6*	*„*

8. The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows.—

—	At home.	Abroad.
	£	£
Deputy inspectors general	67	112
Fleet surgeons and staff surgeons	53	112
Surgeons	39	108

If above the rank of fleet surgeon	5s. 0d. a day.
If of the rank of fleet surgeon or junior	3s. 6d. „

the Admiralty and the
al allowance of £53 a

instruction at Haslar

Two senior officers employed upon this duty ...	£150 a year each.
The junior officer assisting	50 a year.
The junior officer instructing the sick berth staff	50 „
The junior officer instructing the sick berth staff at Plymouth	*50 „*

Medical officers employed elsewhere than at a hospital and not
6d. a day in lieu of pro-
laid down in the King's

12. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

13. *Half Pay.*

Rank.		Daily.	Yearly.
Surgeon:		£ s. d.	£ s. d.
Under 2 years' full pay service	including service allowed by paragraph 4 (f)	0 6 0	109 10 0
After 2 „ „		0 7 0	127 15 0
„ 4 „ „		0 8 0	146 0 0
„ 6 „ „		0 9 0	164 5 0
„ 8 „ „		0 10 0	182 10 0
„ 10 „ „		0 11 0	200 15 0
Staff surgeon:			
On promotion		0 12 0	219 0 0
After 2 years' full-pay service in rank		0 13 0	237 5 0
„ 4 „ „ „ „		0 14 0	255 10 0
„ 6 „ „ „ „		0 15 0	273 15 0
Fleet surgeon.			
On promotion		0 17 0	310 5 0
After 2 years' full pay service in rank		0 18 0	328 10 0
„ 4 „ „ „ „		0 19 0	346 15 0
„ 6 „ „ „ „		1 0 0	365 0 0
Deputy inspector-general:			
On promotion		1 5 0	456 5 0
After 2 years' full pay service in rank		1 7 0	492 15 0
„ 4 „ „ „ „		1 9 0	529 5 0
Inspector-general		1 18 0	693 10 0

Retirement.

14 Compulsory retirement will be as follows:—

Inspector and Deputy Inspector-General of Hospitals and Fleets.	At the age of 60, or at any age, if he has not served for 5 years. *Except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an inspector general of hospitals and fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.	To be retired irrespective of age if found physically unfit for service.
Fleet Surgeon, Staff Surgeon, and Surgeon.	At the age of 55, or at any age, if he has not served for 5 years.	

* Order in Council, May 17th, 1890.

officer will be permitted, subject to ... draw from the Naval Service, receiving a gratuity on the scale laid down

e of time served as resident

be removed from the lists of
en be severed, except in the
ears who are liable to serve

the usual regulations

commissions, will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry.

(c) The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

16. Gratuities and retired pay will be awarded on retirement and withdrawal on the undermentioned scale:—

Rank.	Gratuities.	Daily.	Yearly.
Surgeon and staff surgeon—	£ s. d.	£ s. d.	£ s. d.
After 4 years' full-pay service	500 0 0	—	—
,, 8* ,, ,, ,,	1000 0 0	—	—
,, 12* ,, ,, ,,	1500 0 0	—	—
,, 16* ,, ,, ,,	2250 0 0	—	—
Fleet surgeon—			
After 20 years' service (including proportion of half-pay time)	—	†1 0 0	365 0 0
After 24 years' service (including proportion of half-pay time)	—	†1 2 6	410 12 6
After 27 years' service (including proportion of half-pay time)	—	†1 5 0	456 5 0
After 30 years' service (including proportion of half-pay time) or on compulsory retirement at the age of 55	—	†1 10 0	547 10 0
Deputy inspector-general ...	—	1 15 0	638 15 0
Inspector-general	—	2 0 0	730 0 0

* Including service allowed by paragraph 4 (*f*).

† To obtain this rate an officer must hold the commission of fleet surgeon.

17. An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the service, will receive the half pay of his rank, or, with the consent of their lordships, a gratuity on the scales given in paragraphs 16 and 18 (*b*), but such officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above.

18. An officer retired with less than 20 years' service on account of disability, contracted in but not attributable to the service, will receive—

(*a*) If he has over eight years' full-pay service, either a gratuity on the scale given in paragraph 16, or half pay, according as their lordships think fit;

(*b*) If he has less than eight years' full-pay service, such gratuity as their lordships think fit, not exceeding the rate of £125 for each year of full-pay service.

19. Under circumstances other than those specified in paragraphs 17 and 18, and other than misconduct, neglect of duty, &c., an officer retired with less than 20 years' service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in paragraph 16, if he has eight years' full-pay service, and on that provided in paragraph 18(*b*) should his full-pay service not amount to eight years.

20. The power vested in their lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit.

21. An officer retiring after 20 years' full-pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension.

22. All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement.

This liability will not exist in cases of withdrawal on the conditions specified in paragraph 15 (*b*), *except as indicated in that paragraph as regards officers who withdraw after four years on a gratuity of £500.*

23. Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty, now filled by civilians.

WIDOW'S PENSION.

24. When an officer retires, or withdraws, on a gratuity, his widow and children will have no claim to pension or compassionate allowance.

Officers serving in the reserve who during re-employment are injured on duty, or lose their lives from causes attributable to the service, come under the same regulations as regards compensation for themselves, or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent active list.

MISCELLANEOUS.

25. A special cabin will be appropriated to the fleet or staff surgeon, or surgeon in charge of the medical duties in each ship.

26. Special regulations have been made as regards the mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods.

27. Every medical officer will be required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the service permit), and this as far as possible during his surgeon's, staff surgeon's and fleet surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will be granted lodging and provision allowances, and travelling expenses as for service under the regulations to and from his home or port; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following:—

I. [illegible] ctice of the hospital;
[illegible] on the dead body;
III. A course of bacteriology;
IV. A course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction;
V. A practical course of skiagraphy.

The new regulations for the naval medical officers are preceded by the regulations for the entry of candidates for commissions in the medical department of the Navy, but these regulations are unchanged.

Looking Back.

FROM

THE LANCET, *SATURDAY*, SEPT. 10, 1825.

REVIEWS.

Manuale Medicum, or a Medical Pocket Book, for the use of Students. Adapted to the last edition of the Pharmacopœia Londinensis. By H. L. SANDERS, Surgeon.

I PETE unguentum puer, *chocolatam*, *sprattos*, *limonadam*, *soyamque*,[1] and convince the public that you have not neglected your "medical latin," that opprobrium of our art, at which the shafts of satire have so oft been levelled. Henceforth let the "unlearned laugh" as may seem them fit, their sneers cannot reach us; we are fortified at this point with ramparts stronger than cohorns, and protected from the missiles of the vulgar by a stream of elegant words, as wide and deep as the Oronoko, defying alike the destroying hand of time and the *radical* reformers. "Epitaphs," says Johnson, "should be written in Latin, for being a *dead* language it will always *live*;" and so it seems should prescriptions, if they be meant to outlive the patients for whom they are made. To instruct young gentlemen to prescribe with *elegance* in the Latin language is the laudable intention of our author, to accomplish which, he has set down, under various heads, such words as "are *not* to be met with in Latin authors of the *classic* description;" in short, his work is a sort of "dictionary of the fancy," devoted to the subject of dog latin, embracing the names of many things, and the uses and doses of some others (the latter, apparently, extracted from Dr. T. YOUNG'S Medical Literature); there is no lack of prescriptions, which are arranged under fourteen heads, and the volume is concluded by a sort of practical nosology, written in not very elegant or correct Latin.

THE REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR THE YEAR 1902.

FIRST NOTICE.

THE annual report of the Metropolitan Asylums Board has recently been issued. It consists of one volume of 365 pages and is clearly printed, cheaply but efficiently bound, and contains a sufficient index. The report itself, which occupies ten pages, is signed only by the chairman (Sir R. M. Hensley) and the clerk to the Board, and gives a brief summary of the chief features presented in the body of the volume and serves as an introduction to the sectional reports which follow.

The work which is administered by the Metropolitan Asylums Board includes primarily the care of the insane, the training of feeble-minded children, and the charge of those who suffer from certain infectious diseases. The most important branch of its duties is to provide hospital accommodation for cases of scarlet fever and of diphtheria, and in regard to the treatment of these disorders two unsatisfactory features have obtruded themselves prominently upon the notice of the Board. In the first place, it became evident that patients recovering from scarlet fever had a great liability to contract diphtheria The second unsatisfactory feature was that patients who had been treated for these diseases very frequently became the means of communicating them to those with whom they came into contact after their discharge from the hospital

---

[1] *Chocolata*, chocolate; *sprattus*, a sprat; *limonada*, lemonade; *soya*, soy, &c. &c.—Sanders. Out upon such trash!

In regard to the first of these questions, it was desirable "to discover whether or not diphtheria followed scarlatina by infection or *vice versâ* (which was thought quite possible seeing that both the diseases are treated in each of the fever hospitals, though of course in different parts)" The Board, therefore, in order to elucidate this problem, resolved to set apart one hospital for the treatment of scarlet fever only and another for cases of diphtheria only This experiment was tried for a period of 18 months and was, we are told, done with all the thoroughness possible The conclusion which was arrived at was that "the limitation imposed upon the Board's resources by assigning one group of hospitals to scarlet fever and another to diphtheria would not result in any corresponding benefit"

The second unsatisfactory point in connexion with the administration of the infectious diseases hospitals—the spread of the disease by discharged patients—is still engaging the attention of the Board In the meantime a special investigation by Dr J W Simpson is being made and "special communications' have been received from the Royal College of Physicians of London and the Royal College of Surgeons of England It is satisfactory to hear that one of the senior medical officers of the Board has been charged to follow up every alleged "return" case as soon as it is reported This inquiry was begun in July, 1901, and the record of the investigations and the conclusions arrived at are anxiously awaited by the Board It may be suggested that one of the carefully selected and well trained inspectors of the medical department of the Local Government Board might in the meantime have been requested to make a short but thorough investigation of the administration of the hospitals and into the efficiency of the disinfecting apparatus in use Failing this or a similar measure it cannot be said that the report signed by the chairman and secretary of the Metropolitan Asylums Board shows that they quite appreciate either the difficulties or the urgency of matter

It is refreshing to turn from the somewhat optimistic remarks of the chairman and the secretary of the Board to the reports of the medical officers, but it is less pleasing to note that in not a few cases it appears that omissions have been made in the publication of these reports Have these deletions been made because the Board does not wish all the facts to be known to the public, for it cannot for a moment be supposed that the medical superintendents deal with matters which are beyond their sphere of influence, each officer is responsible for his own report, and the fact that any part of it is suppressed by the Board might have serious issues At the Eastern Hospital at Homerton, which is under the direction of Dr E W Goodall, 1852 patients were under treatment during the year Of these, 215 suffered from scarlet fever and there were seven deaths (a percentage mortality of 3 7), four cases of diphtheria occurred and four cases of "secondary" tonsillitis (none of which were fatal) The number of cases of diphtheria treated was 1232 and of these 108 patients died (a percentage mortality of 10 03) but amongst the fatal cases were 17 in which death was caused by other zymotic diseases contracted either before or after admission to the hospital (scarlet fever in nine measles in six, and whooping cough in two cases), and if, as seems right allowance be made for these the percentage mortality from diphtheria was in reality 8 45 Amongst 163 cases of typhoid fever there were 18 deaths (a percentage mortality of 12 28) Three cases of small pox were admitted before typical symptoms had manifested themselves but there was no spread of the disease One case of hæmorrhagic small pox was sent to the hospital certified as typhus fever A number of wards were kept ready for the reception of plague patients, so should there have been an outbreak of that disease there would have been no delay in regard to the isolation of the patients

It is impossible to give even a brief summary of all the reports and it must suffice to say that at the North-Eastern Hospital at Tottenham (which is under the charge of Dr H E Cuff) 3968 patients were treated; at the Western Hospital, Fulham (under Mr R M Bruce), the number was 2955; at the South-Western Hospital Stockwell (under Dr F F Caiger), 2158 cases, at Fountain Hospital, Tooting grove (under Dr O E Matthews), 2377, at Grove Hospital, Tooting Graveney (under Dr J E Beggs), 2198, at the South Eastern Hospital (under Dr F. M Turner) 1991, and at Park Hospital, Hither green, S E (under Dr R A Birdwood), 1816 new cases were admitted At Brook Hospital, Shooter's hill (under Dr J MacCombie), 1930 were treated and at the Northern Hospital, Winchmore-hill (under Mr F N Hume) 4931

Two very important and satisfactory facts are made evident and emphasised in the reports of the medical officers Of these the first is the diminution of mortality in cases of scarlet fever Thus the average mortality during the years 1894 98 was 4 2 per cent, and during the years 1899–1902 it was 2 4 per cent The second and greater cause for congratulation (for the death incidence in zymotic diseases is liable to unexplainable variations) is the now established fact that the mortality from diphtheria has greatly lessened under the serum treatment On this point there cannot any longer be the shadow of a doubt and there is reason to hope that this knowledge is gradually spreading It is not equally certain that it is so fully realised that the success of the treatment depends mainly on the time of its application This question is one of vital importance Dr MacCombie has shown that within his experience not a single case of death took place amongst the patients who were treated on the first day of the disease, of those first treated on the second day the mortality was, roughly speaking, about 4 per cent, whilst amongst those not treated until the third or some subsequent day the death rate was very much higher It may be well to give in tabular form the results of the serum treatment as shown by the records of the Brook Hospital during the last six years —

Table of Cases of Diphtheria treated by Serum at the Brook Hospital, Shooter's hill, during a Period of Six Years (1897–1902) showing the Rate of Mortality per 100 and its Relation to the Date of the Disease on which the Treatment commenced

Day of the disease on which treatment commenced	Year during which the patient was under treatment					
	1897	1898	1899	1900	1901	1902
First	0 0	0·0	0 0	0 0	0 0	0 0
Second	5 4	5 0	3 8	3 6	4 1	4 6
Third	11 5	14 3	12 2	6 7	11·9	10·5
Fourth	19 0	18 1	20·0	14 9	12 4	19 8
Fifth and after	21 0	22 5	20 4	21 2	16 6	19 4

FOREIGN UNIVERSITY INTELLIGENCE —*Amsterdam* Dr K F Wenckebach of Groningen has been appointed to the chair of Clinical Medicine in succession to Professor Stokvis, deceased Dr H Thimmer has been recognised as *privat docent* of Orthopædic Surgery —*Berne* The title of Professor has been granted to Dr Oesterie, *privat docent* of Pharmacology —*Bologna* Dr. Raffaele Brugia of Modena has been recognised as *privat docent* of Neurology and Psychiatry —*Breslau* Dr Otfried *privat docent* of Nervous Forster h Blanco Rivero Diseases ical Anatomy — has been been recognised *Freiburg* . Dr P. Stolper as *privat* of Breslau has been recognised as *privat docent* of Forensic Medicine —*Halle* Dr T Ziehen of Utrecht has been appointed Professor of Neurology and Psychiatry in succession to Professor Hitzig resigned —*Kazan* Dr O Archangelski of Odessa has been appointed to the chair of Pharmacology —*Kharkoff* Dr Georgievski of St Petersburg has been appointed Extraordinary Professor of Internal Medicine —*Königsberg* Dr Karl Bonhoeffer of Breslau has been appointed Professor of Psychiatry Until now only an Extraordinary Professorship of this subject existed —*Madrid* Dr Tomás Maestro Pérez has been appointed to the chair of Forensic Medicine and Toxicology —*Munich*. Dr Emil Krapelin of Heidelberg has been appointed to the chair of Psychiatry in succession to the late Dr Bumm *Naples* Dr D Morisani of Sienna has been appointed Professor of External Pathology —*Odessa* Dr N A. Shchégoleff of St Petersburg has been appointed Professor of External Pathology

Obituary.

WILLIAM HENRY CORFIELD, M.A., M.D. OXON., F.R.C.P. LOND.,

CONSULTING SANITARY ADVISER TO HIS MAJESTY'S OFFICE OF WORKS.

WE have already recorded the death of Dr. W. H. Corfield of Savile-row, London, which took place at Marstrand, Sweden, on August 26th, in his sixtieth year.

William Henry Corfield was born in 1843 at Shrewsbury and was educated at the Cheltenham Grammar School, whence he gained a Demyship in Natural Science at Magdalen College, Oxford, at the age of 17 years. In the subsequent October he matriculated and in 1863 he gained a first-class in mathematical moderations. In the same year he was selected by Professor Daubeny to accompany him in his examination of the volcanic appearances in the Montbrison district of Auvergne. In 1864 he took the degree of Bachelor of Arts. Early in the following year Dr. Corfield obtained, in open competition, the Sheppard Medical Fellowship at Pembroke College. In 1866 he won the Burdett-Coutts Scholarship and in 1867 the Radcliffe Travelling Fellowship. This gave him a chance of visiting the professional centres of the continent and, amongst other places, Paris, where he studied analysis with special reference to hygienic matters under Berthelot at the Collège de France and took the opportunity then afforded of clinical study under Béhier, Sée, Hardy, and other eminent teachers, besides attending Bouchardat's lectures on hygiene. He next proceeded to Lyons where he worked at clinical medicine and surgery and also made a special study of the remains of the remarkable aqueducts of ancient Lugdunum, visiting afterwards some of the medical schools in Italy and Sicily. In London he studied at University College Hospital and in 1868 he took his M.B. degree and was appointed examiner for honours in natural science at the University of Oxford. In 1869 he received the further appointment of professor of hygiene and public health at University College, London. He started in 1875 at this College the first hygienic laboratory established in London.

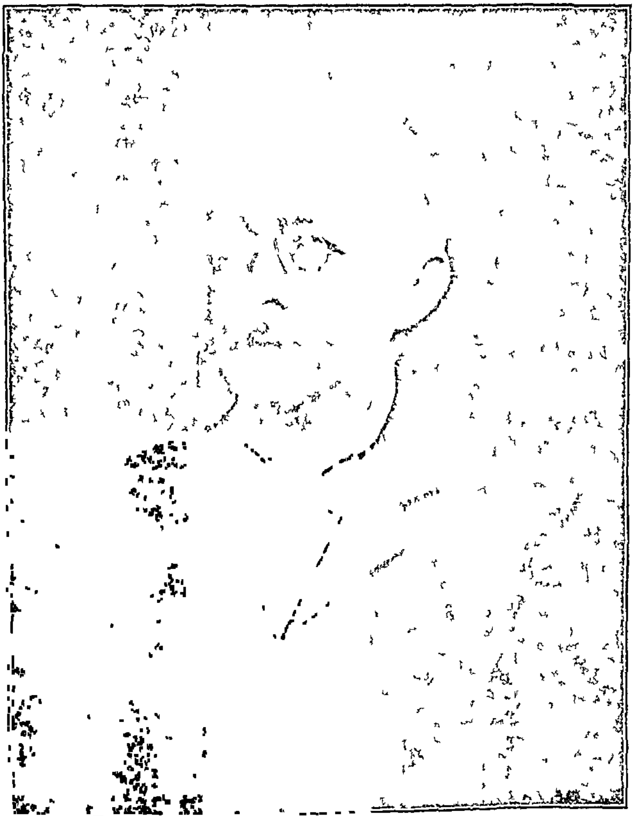
Dr. Corfield became a Member of the Royal College of Physicians of London in 1869 and in the same year was elected a member of the committee appointed by the British Association for the Advancement of Science to report on the treatment and utilisation of sewage. For six years he performed the laborious duties of reporter to the committee and was actively engaged in its important work which has had a great influence on the subsequent advancement of sanitary science. At the request of the members of this committee Dr. Corfield prepared "A Digest of Facts relating to the Treatment and Utilisation of Sewage," which was published in 1870 and has gone through two subsequent editions. His work embodied a vast amount of original research and was in no sense a report of the committee.

The alarming illness of the King (then Prince of Wales) at Londesborough Lodge, Scarborough, where he was attacked by typhoid fever at the close of the year 1871, called attention very prominently to the subject of house sanitation and Dr. Corfield made, at Lord Londesborough's request, a careful inspection of the condition of the lodge and described the results in a letter which appeared in the *Times* on Jan. 22nd, 1872. With reference to this Dr. Corfield said in a discussion on the Prevention of Enteric Fever at the Royal Medical and Chirurgical Society: "On going through my original notes I have been forced to the conclusion that it was not a case in which the disease was conveyed by sewer air, because the persons who were most in the house did not get it."

In 1871 Dr. Corfield was elected medical officer of health of Islington and in 1872 obtained the same post in St. George's, Hanover-square, which he held for 28½ years. He took his M.D. degree at Oxford in 1872 and was in the following year appointed lecturer on the laws of health at the Birmingham and Midland Institute, an office which he held for five years; afterwards he accepted a similar post at the Saltley Training College. In 1873 he delivered a course of lectures on Water-supply, Sewerage, and Sewage Utilisation to the Royal Engineers stationed at Chatham; these lectures were at once reprinted in the United States. Dr. Corfield in 1874 read a paper before the Epidemiological Society on the Alleged Spontaneous Production of the Poison of Enteric Fever, in which he vigorously combated the then prevailing views of Murchison as to the possibility of the *de novo* origin of the disease. His conclusions were summed up as follows: "I therefore maintain that foul air contaminated by decomposing animal matters is capable of producing mere diarrhœa, and that when it produces enteric fever it contains the poison of that disease, and that the arguments adduced to prove that this poison can be generated from such decomposing matters independently of a previous case of the disease are inadequate to do so; that in many of the cases where non-importation is supposed to have been all but proved it has not been even rendered a fair presumption, and, therefore, that in the present state of our knowledge we are not justified in saying that the disease ever arises *de novo*." In 1875 Dr. Corfield was elected a Fellow of the Royal College of Physicians of London, and in the same year he published some "Remarks on the Study and Practice of Public Medicine" which were delivered as an introductory lecture to the students of University College. One of his most interesting *brochures* is a pamphlet on "Sanitary Fallacies," which was the substance of an address delivered at Croydon in 1879 to the Sanitary Congress, wherein he sketches the history of the progress of medicine and dwells specially upon the current fallacies of the day, naming the untenable arguments adduced in favour of the spontaneous origin of zymotic disease, the misunderstanding of the water-carriage system for the removal of sewage, and the popular errors in regard to dietetics and vaccination. In 1879 he delivered the Cantor Lectures before the Society of Arts, taking for his subject "Dwelling Houses, their Sanitary Construction and Arrangements." These lectures were translated into French by Dr. Jardet and published in Paris. A very useful course of lectures which Dr. Corfield delivered at the rooms of the Society of Arts, under the auspices of the Trades' Guild of Learning and of the National Health Society, was published in 1880. The lectures were of that popular kind suggested by Canon Kingsley in his "Essay on Science and Health," where he claimed that people should be taught "something of how their bodies are made and how they work." It would be impossible to imagine anything more terse and clear for the understanding of unprofessional people than Dr. Corfield's exposition, in these reprinted lectures, of the anatomy of the organs, the circulation and respiration, the process of nutrition, and the other functions of the body, with the conditions of health and disease.

Dr. Corfield devoted himself for over 30 years exclusively to sanitary practice, advising as to the causes of outbreaks of disease connected with sanitary defects and the remedying of such defects. In recognition of his devotion to this subject the Royal Institute of British Architects elected him an Honorary Associate. At the International Health Exhibition in 1884 he was director of the hygienic laboratory there and he made some very important contributions to the official literature of the exhibition. One of the most valuable of these was a lecture on Foul Air in Houses. He was also a member of the committee that superintended the construction of the "healthy and unhealthy houses" which attracted so much attention at that exhibition. In 1897 he was appointed honorary sanitary adviser to University College Hospital, in 1899 consulting sanitary adviser to His Majesty's Office of Works, and in 1902 honorary sanitary adviser to University College. In 1885 he delivered the anniversary address to the Sanitary Institute on the Water-supply of Ancient Roman Cities, with especial reference to Lugdunum (Lyons), in which he showed how the Romans employed inverted syphons made of lead for the purpose of carrying their aqueducts across deep valleys, illustrated by lithographs from sketches made by himself on the spot. In 1893 he delivered his Harveian Lectures before the Harveian Society of London on Disease and Defective House Sanitation. These lectures have been translated into French and published in the *Bulletin* of the Royal Society of Public Health of Belgium (1899) and also into Hungarian under the auspices of the Royal Society of Public Health of Hungary.

His work was recognised abroad, for he was "Membre d'honneur" of the Royal Society of Public Health of Belgium, honorary member of the Society of Hygiene of France and of the Hungarian Society of Public Health, honorary corresponding member of the Imperial Society of Medicine of Constantinople and of the Royal Society of Hygiene of Italy, and Fellow of the Medical Society of



Professor W H Corfield

Sweden The Royal Society of Public Medicine of Belgium awarded him its bronze medal for his work in connexion with public health He was president of the Public Health Section of the British Medical Association held at Bristol in 1894 and of Section I of the Congress of the Sanitary Institute held at Newcastle on Tyne in 1896 It was through his determined efforts that the International Congress of Hygiene was held in London in 1891, under the presidency of the King (then Prince of Wales) Dr Corfield acted as foreign secretary to that Congress and through his personal acquaintance with many of the leading hygienists in various countries was able to obtain the formation of committees for making the Congress known abroad and for thus insuring the attendance of foreign hygienists He was for more than 20 years chairman of committee of the Sunday Society, the object of which is the opening of museums, picture galleries, and public libraries on Sundays , he played a leading part in the movement which has resulted in the opening of our national museums to the public on Sunday afternoons , whilst his literary talents were by no means too exclusively devoted to professional purposes, as is witnessed by his papers on "Mountain Climbing," on "Etna in Winter," on "The Volcanoes of Auvergne," and on "Pile Dwellings in the Swiss Lakes "

Dr Corfield represented His Majesty's Office of Works at the International Congress of Hygiene and Demography held in Paris in 1900, and was elected an honorary president of the Congress He presided at the conference held by the Sanitary Institute in Paris in August, 1900 under the auspices of the Société Française d Hygiène, and in 1902 he was elected President of the Epidemiological Society No one however, can be incessantly at work and most men who work hard have "hobbies ' Dr Corfield s hobbies were geology, fishing, golf, and, as is the case with many medical men, art He amassed an extensive collection of geological specimens and discovered the presence of lithodomi in the Silurian strata thus removing to an earlier age than had previously been known the existence of boring bivalves He had been an ardent angler all his life, being especially fond of salmon fishing. He had a choice library of works on angling and was well known as a Bewick collector as well as a collector of fine bindings

Dr Corfield married in 1876 Emily Madelina youngest daughter of the late Mr John Pike, F S A , and leaves six children, the eldest of whom was a mathematical scholar of Pembroke College, Oxford Although Dr Corfield died in a foreign land he was not entirely amongst strangers in his last hours, his daughter and one of his sons being with him

EDMOND ISIDORE ETIENNE NOCARD

PROFESSOR NOCARD, director of the Veterinary School at Alfort, near Paris, who has just died in his fifty fourth year, enjoyed a European reputation as an original investigator on the subject of the epidemic and communicable diseases of the lower animals An outline of his career has been already given by our Paris correspondent in THE LANCET of August 8th, p 430 Of his exceedingly comprehensive work perhaps the most important related to tuberculosis and its results were embodied in his "Tuberculose des Animaux Domestiques" He was a firm believer in the identity of tuberculosis in all circumstances, irrespective of the animal affected, and his views were therefore totally opposed to those held by Professor Robert Koch as to the existence of an essential distinction between the Perlsucht of bovine animals and human tuberculosis Mention must also be made of his important contributions to our knowledge of actinomycosis, anthrax, pneumonia and rabies His investigations were therefore mainly bacteriological and his name has been given to a bacillus found in the superficial ulcers of cattle suffering from farcy and also called *bacille du farcin du bœuf* Professor Nocard was a member of the Royal Agricultural Society of England and was well known in Ireland where the practical value of some of his recent scientific work has been gratefully recognised The sanction of the French Ministry of Agriculture having been obtained, he was induced by the Department of Agriculture and Technical Instruction for Ireland to go to Ireland for the purpose of investigating the cause of the high death rate in calves which prevailed, especially in Munster A bacteriological laboratory was provided for him in Limerick and he arrived in that country in March, 1901 His report was forwarded from the Veterinary School of Alfort under the French Ministry of Agriculture in October, 1901 His paper, which appeared in the Transactions of the Department of Agriculture and Technical Instruction for Ireland, proved of great practical value and as an example of methods of research in this comparatively new domain of bacteriology is of much interest to scientific medical men. Sir Horace Plunkett stated of him in the official Government report as follows "The department feels that Professor Nocard has placed the agriculturalists, not of Ireland only, but of the entire world, under obligations by the most successful issue of his admirably conceived series of experiments and investigations "

Professor Nocard was engaged for many years in inquiries in connexion with outbreaks of disease among domestic animals in France In a communication read at the International Congress of Hygiene held at Madrid some six years ago he made known the discovery of the germ of contagious pleuro pneumonia which had long baffled bacteriologists all over the world He made many other important discoveries in bacteriology and since Professor Pasteur—whose enthusiastic pupil he was—has probably done more than anybody else in his own special line of investigation Professor Pasteur as is well known, was not a medical man but a chemist and bacteriologist Nobody can doubt, however, the admirable and far reaching effects of his work for the benefit of humanity Professor Nocard s investigations and discoveries in connexion with diseases in the lower animals—some of them in affinity with our own and some of them infectious to man—may perhaps have a similar outcome His life work has been widely recognised by many honours and decorations in his own and in foreign countries Professor Nocard was moreover, the recipient of many purely medical distinctions It is 17 years since he was elected a member of the Académie de Médecine and at his funeral which was conducted with military honours, the chief pall bearer was the President of the Académie de Médecine

POST-GRADUATE WORK ABROAD.

I PARIS

BY A A WARDEN, M D GLASG AND PARIS,
PHYSICIAN TO THE HERTFORD BRITISH HOSPITAL, PARIS

DURING most of the nineteenth century English and Scottish graduates flocked to Paris to complete their medical education From the middle ages their forefathers had gathered at the Sorbonne and the University of Paris to study the humanities and the philosophies of the time Since 1870—the *année terrible* when for a time the destiny of France seemed clouded over—the graduate has turned rather to Berlin or to Vienna either because of the reputation for careful and thorough original work that these schools have obtained or more probably on account of the effort made in them to meet the wants of foreigners and to supply them [illegible] arch And [illegible] dical stude [illegible] the Parisian clinics and operating theatres are crowded with men from Russia and Germany and Southern Europe generally, as well as from the Republics of South America In the last decade, also, the tide seems to be turning and, owing possibly to the gradually increasing appreciation of the immense services rendered by Pasteur and his Institute to both medicine and surgery, the Paris school bids fair to hold its own even against the latest of post-graduate institutions—those on the other side of the Atlantic

It is always difficult to measure one s contemporaries but we may be sure, if "there were giants in those days,' there are giants still to day and that as there were brave men before Agamemnon, so there have been brave men since Pasteur, Trousseau, Louis, Laennec and Dupuytren have left worthy successors and Duclaux, Dieulafoy, Lancereaux, Doyen, Hartmann, Lannelongue, and Terrier are some among many that might be named It must surely also be considered a period of exceptional activity and brilliancy when the authors of much remarkable work are still to the fore It is not yet ten years since Roux made his first injection of anti diphtheritic serum in Grancher's, Descroizilles, and Jules Simon s wards in the Hôpital des Enfants Malades in the rue de Sèvres Feb 1st, 1894, was the date at which the average mortality from diphtheria in these wards fell from 50 to 24 per cent. Only the other day another of Pasteur's pupils, Metchnikoff, succeeded in inoculating syphilis into one of the lower animals, the genuine nature of the chancre being attested at the sitting of the Academy of Medicine by Fournier himself. Brouardel, Netter, Roger, Chantemesse, Bouchard, Robin, Babiniski, Hayem, Chauffard, and Debove well represent scientific medical practice. Berger, Pozzi, Segond, Broca, Tuffier, Kirmisson, Legneu, and Lejars are names in surgery known all the world over.

Useful as the special post-graduate courses are, the chief interest of a visit to Paris lies in the fact that the clinical lectures, the operations, the ward visits, and the examination of the patients are, each morning and in every hospital, freely open to any physician, French or foreign, who has only to present his card to the *concierge* of the hospital and to ask by name for the surgeon or physician he may wish to see. The value of this privilege is well seen in the experience of a young graduate of my acquaintance who came here last year with the intention of doing further work in nervous diseases. The physician whose service he visited with a card of introduction soon gave him charge of a certain number of beds in one of the great nervous clinics, where he was admitted to the ordinary privileges of the other *internes* as to library, laboratory, and even meals, and where he remained for nearly six months. An informal post-graduate course, if you like, but invaluable in the opportunities it offered. It may be added that the hospitals of Salpêtrière and Bicêtre possess between them several thousand beds available as clinical material.

Paris in fact offers a unique field and unlimited opportunity to the man who wishes to work and who knows what he wants to work at. In my "Handbook to the Paris Medical School"[1] I have endeavoured to sketch the general course that should be pursued, giving a fairly complete account of the details of scientific medical education in Paris and summarising them in a table in the form of a diary.

The visitor's first difficulty is, naturally, where to pitch his tent and this is not lessened by the knowledge that the various hospitals in which he proposes to spend most of his time are considerably scattered. None the less, it may be said that for him the central locality is the so-called Quartier des Ecoles or Quartier Latin on the left bank of the Seine. Here, within a few hundred yards of each other, on the streets running off the Boulevard St. Michel, are the school of medicine buildings with the anatomy rooms and laboratories, the Sorbonne, the Collège de France, most of the medical publishers and booksellers and surgical instrument-makers, and a little further off such important hospitals as La Charité, Läennec, Necker, Sick Children's, the Clinique Baudelocque. Here, too, will be found hotels and *maisons meublées* with furnished rooms and board at reasonable rates. The boulevards St. Michel and St. Germain are the chief thoroughfares of this quarter and countless generations of students have lived in the streets off them, such as the rue des Ecoles, the rue de l'Odeon, and the rue Monsieur-le-Prince where Oliver Wendell Holmes (not to speak of the great Auguste Comte) had his rooms about 70 years ago.

The hotel chosen, the next step is to arm oneself with the *carte d'entrée des hôpitaux* issued gratuitously on presentation of one's card at the offices of the Assistance Publique 3, Avenue Victoria. This card carries a formal request to the various directors of hospitals, &c., to facilitate the visit of their establishment and to give information. While neither absolutely necessary nor always asked for, this card is a veritable passport, especially if the bearer's knowledge of the French language is limited. It is also useful, as on it are printed the names of all the general and special hospitals under the jurisdiction of the Assistance Publique. Next a visit to the buildings of the Faculty in the Place de l'École de Médecine and a glance at the many placards and notices there exposed will show the official courses of lectures and cliniques going on at the time. Many physicians and surgeons who have wards and who may perhaps give special attention to the development of post graduate instruction, having no chair, are unconnected with the Faculty and their names find no place here. Notices of these and other extramural courses will only be found in the hospitals themselves or in the medical journals, such as the *Bulletin Médical, La Presse Médicale*, &c. I should strongly advise the new arrival to purchase the last few numbers of one such journal in order to put himself *au courant* with all that may be going on. For the whereabouts of the hospitals, the names of the men on the visiting staffs, the days of operations and ward visits, he must rely upon the *Guide Médical* published in 1900 by Maloine and now a little out of date or my own handbook to which I have already referred.

In the last six years facilities for post-graduate work in Paris have so greatly developed that there is probably now no department in medicine and no period of the year in which abundant opportunities are not available. The invaluable and complete course in bacteriology at the Pasteur Institute is of such duration—three months—that it takes place at most twice in the year and names must be sent in for it some time in advance to Dr. Roux or his assistants. With regard to most of the other courses there is frequently an *embarras de choix*. Thus, at present, during the summer months, between July and September, there are no fewer than four separate practical post-graduate courses in laboratory methods applied to clinical medicine, under the direction and in the wards of Dieulafoy, Landouzy, Cornil, and Brissaud. Similar courses are given in surgery, operative surgery, midwifery and gynæcology, children's, genito-urinary, and tropical diseases, and in most of the specialities. Other official and free courses are given in summer by those temporarily replacing the professor, usually in clinical medicine and surgery. In operative surgery courses may be taken practically all the year round from the prosectors under Dr. Hartmann's superintendence. Five years ago the number of graduates, chiefly foreigners, following these courses of operative surgery was 22; this summer (between March and July) there have been 240. They are divided into several series, thus: (1) operations on the male genito-urinary tract; (2) gynæcological operations; (3) bones and joints; (4) stomach, intestines, liver, &c.; (5) emergency operations; (6) nervous system; and (7) neck and trunk. Valuable clinical experience can also be obtained at the out-door consultation departments of the larger hospitals. These are well organised, the number of patients is large and the number of students is small, the teaching is good, and the morning there is often far more profitable than that spent on the seats of an operating theatre at a distance that makes the finer and more important details of the operation invisible.

In concluding this brief sketch let me add that there are English, Scottish, Irish, and American practitioners in Paris ready to bear a helping hand to any countryman in difficulty or doubt.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8478 births and 4616 deaths were registered during the week ending August 29th. The annual rate of mortality in these towns, which had been 14·3, 15·7, and 15·7 per 1000 in the three preceding weeks, further rose to 16·0 per 1000. In London the death-rate was 14·3 per 1000, while it averaged 16·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 3·5 in Devonport, 8·3 in Bournemouth, 8·7 in Hastings and in Blackburn, 8·9 in Croydon, 9·2 in Leyton, and 9 8 in Willesden, Walthamstow, Bristol, Smethwick, and Swansea; the highest rates were 21·0 in Nottingham and in Burnley, 21·8 in Wigan, 21·9 in Hull, 22·3 in Sunderland, 22·8 in Rotherham, 23·0 in Aston Manor, 25·2 in Middlesbrough, and 26·3 in Sheffield. The 4616 deaths in these towns included 1060, which were referred to the principal infectious diseases, against 717, 887, and 1006 in the three preceding weeks; of these 1060 deaths, 821 resulted from diarrhœa, 62 from diphtheria, 61 from whooping-cough, 60 from measles, 32 from scarlet fever, 22 from "fever," and two from small-pox. No death from any of these diseases was registered in Bournemouth, Devonport, Burton-on-Trent, King's Norton, Coventry, Halifax, or Tynemouth; while the highest death-rates from the principal infectious diseases were recorded in Aston Manor, Birkenhead, Wigan, Burnley, Sheffield, Rotherham, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Sheffield, Middlesbrough, and Sunderland; from diphtheria in Salford and Rotherham; from whooping-cough in Rochdale and Burnley; and from diarrhœa in Aston Manor, Grimsby, Birkenhead, Bootle, Wigan, Bolton,

---

[1] An English Handbook to the Paris Medical School. 1903. London: J. and A. Churchill.

Buri
The
no marked excess in any of the large towns Of the two fatal cases of small-pox registered in these towns one belonged to Liverpool and one to South Shields The Metropolitan Asylums hospitals contained 57 small-pox patients on Saturday, August 29th, against 48, 45, and 52 on the three preceding Saturdays; 11 new cases were admitted during the week, against four, nine, and 13 in the three preceding weeks The number of scarlet fever patients remaining under treatment in these hospitals and in the London Fever Hospital, which had been 1771, 1758, and 1797 at the end of the three preceding weeks, had declined again to 1774, 199 new cases were admitted during the week, against 216, 215, and 225 in the three preceding weeks The deaths referred to diseases of the respiratory organs in London which had been 120 in each of the two preceding weeks, declined to 114 and were 23 below the number in the corresponding period of last year The causes of 40, or 0 9 per cent, of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner All the causes of death were duly certified in West Ham, Nottingham, Salford, Newcastle on Tyne, and in 46 other smaller towns, the largest proportions of uncertified deaths were registered in Liverpool, Manchester, Leeds, Sheffield, and Gateshead

In 76 of the largest English towns 8683 births and 4548 deaths were registered during the week ending Sept 5th The annual rate of mortality in these towns, which had been 15 7, 15 7, and 16 0 per 1000 in the three preceding weeks, declined again last week to 15 7 per 1000 In London the death rate was 14 1 per 1000, while it averaged 16 5 in the 75 other large towns The lowest death rates in these towns were 3 3 in Kings Norton, 5 4 in Leyton, 6 6 in Croydon, 7 2 in Handsworth, 8 6 in Hornsey, 9 4 in Willesden, and 9 9 in East Ham and in Bournemouth, the highest rates were 21 0 in Burnley, 21 7 in Gateshead 21 8 in Wigan, 21 9 in Liverpool, 22 3 in Bootle, 22 6 in Sheffield, 23 0 in Birkenhead, 24 4 in Hull, and 25 2 in Middlesbrough The 4548 deaths in these towns last week included 973 which were referred to the principal infectious diseases, against 887, 1006, and 1060 in the three preceding weeks, of these 973 deaths, 731 resulted from diarrhœa, 61 from whooping cough, 51 from measles, 51 from diphtheria, 42 from "fever' (principally enteric) 30 from scarlet fever, and seven from small pox No death from any of these diseases was registered last week in Hornsey, Northampton, Kings Norton or Merthyr Tydfil, among the other towns they caused the lowest death rates in Leyton, Hastings, Bournemouth, Reading, Coventry, Rochdale Halifax, and South Shields; and the highest rates in Stockport, Bootle, Wigan, Bury, Salford, Sheffield, Hull, and Middlesbrough The greatest proportional mortality from measles occurred in Ipswich, Warrington, and Sheffield, from scarlet fever in Bury, from diphtheria in Brighton; from whooping cough in Burnley, from "fever" in Bootle, and from diarrhœa in Aston Manor, Stockport, Liverpool, Bootle, Wigan, Bury, Salford, Sheffield, Hull, and Middlesbrough Of the seven fatal cases of small pox registered in the 76 towns last week one belonged to London, one to Hanley, one to Burton on Trent, one to Liverpool, one to Halifax, one to Newcastle on Tyne, and one to Tynemouth The number of small pox patients under treatment in the Metropolitan Asylums hospitals, which had been 45, 52 and 57 at the end of the three preceding weeks had declined again to 49 at the end of last week, six new cases were admitted during the week, against nine, 13, and 11 in the three preceding weeks The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 1796 against 1758 1797, and 1774 at the end of the three preceding weeks, 229 new cases were admitted during the week, against 215 225, and 199 in the three preceding weeks The deaths referred to diseases of the respiratory organs in London, which had been 120, 120, and 114 in the three preceding weeks, rose again last week to 123, but were 16 below the number in the corresponding period of last year The causes of 45, or 1 0 per cent, of the deaths in the 76 large towns last week were not certified, either by a registered medical practitioner or by a coroner All the causes of death were duly certified in West Ham, Leicester, Nottingham, Hull, Newcastle on Tyne, and in 53 other smaller towns, the largest proportions

---

HEALTH OF SCOTCH TOWNS

The annual rate of mortality in eight of the principal Scotch towns, which had been 14 7, 15 4 and 15 1 per 1000 in the three preceding weeks, was again 15 1 per 1000 during the week ending August 29th, and was 0 9 per 1000 lower than the mean rate during the same period in the 76 large English towns The rates in the eight Scotch towns ranged from 13 9 in Perth and 14 1 in Edinburgh to 15 8 in Greenock, and 20 1 in Paisley The 495 deaths in these towns included 58 which were referred to diarrhœa, eight to measles, seven to scarlet fever, seven to whooping-cough, six to diphtheria, and four to "fever" In all, 90 deaths resulted from these principal infectious diseases, against 60, 69, and 96 in the three preceding weeks These 90 deaths were equal to an annual rate of 2 8 per 1000, which was 0 9 per 1000 below the mean rate for the previous week from the same diseases in the 76 large English towns The fatal cases of diarrhœa, which had been 34, 45, and 65 in the three preceding weeks, declined again to 58, of which 37 were registered in Glasgow, six in Paisley, four in Dundee, four in Greenock, three in Leith, and two in Edinburgh The deaths from measles, which had been five, five, and six in the three preceding weeks, further rose to eight, and included four in Glasgow and three in Edinburgh The fatal cases of scarlet fever, which had been six, three, and none in the three preceeding weeks, increased again to seven, of which four occurred in Glasgow and two in Edinburgh The deaths from whooping cough, which had been five, 12, and nine in the three preceding weeks, declined again to seven, and included four in Glasgow and two in Greenock The fatal cases of diphtheria, which had been one and six in the two preceeding weeks were again six, and included four in Glasgow and two in Edinburgh The deaths referred to different forms of "fever," which had been six, three, and nine in three preceding weeks, declined again to four, of which three were recorded in Glasgow The deaths attributed to diseases of the respiratory organs, which had been 54 50 and 51 in the three preceding weeks, were again 51 and were slightly below the number in the corresponding period of last year The causes of 18, or nearly 4 per cent, of the deaths in these eight towns were not certified.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15 1 per 1000 in each of the two preceding weeks, increased to 16 6 per 1000 during the week ending Sept 5th and was 0 9 per 1000 in excess of the mean rate during the same period in the 76 large English towns The rates in the eight Scotch towns ranged from 11 8 in Leith and 13 8 in Paisley, to 16 5 in Greenock and 18 8 in Glasgow. The 542 deaths in these towns included 58 from diarrhœa, ten from "fever," nine from whooping cough, four from measles, four from diphtheria, and three from scarlet fever, but not one from small pox In all, 88 deaths were referred to those principal infectious diseases last week, against 69, 96, and 90 in the three preceding weeks These 88 deaths were equal to an annual rate of 2 7 per 1000, which was 0 7 per 1000 below the mean rate last week from the same diseases in the 76 large English towns The fatal cases of diarrhœa,
which had been 45,
were again 58 last
in Aberdeen, seven i
burgh, and two in D
forms of "fever, which had been three, nine, and four in the three preceding weeks, rose again last week to ten, of which six were registered in Glasgow and two in Dundee The fatal cases of whooping cough, which had been 12, nine, and seven in the three preceding weeks, increased again to nine last week, and included six in Glasgow and two in Dundee. The deaths from measles, which had been five, six, and eight in the three preceding weeks declined again last week to four, of which two occurred in Glasgow and two in Paisley The fatal cases of diphtheria which had been six in each of the two preceding weeks, decreased to four last week, and included two in Glasgow and two in Edinburgh. The three deaths from scarlet fever showed a decline of four from the number in the preceding week, and included two in Glasgow The deaths referred to diseases of the respiratory organs in these towns, which had been 51 in each of the two preceding weeks, rose last week to 54, but were seven below the

1894, was the date at which the average mortality from diphtheria in these wards fell from 50 to 24 per cent. Only the other day another of Pasteur's pupils, Metchnikoff, succeeded in inoculating syphilis into one of the lower animals, the genuine nature of the chancre being attested at the sitting of the Academy of Medicine by Fournier himself. Brouardel, Netter, Roger, Chantemesse, Bouchard, Robin, Babinski, Hayem, Chauffard, and Debove well represent scientific medical practice. Berger, Pozzi, Segond, Broca, Tuffier, Kirmisson, Legueu, and Lejars are names in surgery known all the world over.

Useful as the special post-graduate courses are, the chief interest of a visit to Paris lies in the fact that the clinical lectures, the operations, the ward visits, and the examination of the patients are, each morning and in every hospital, freely open to any physician, French or foreign, who has only to present his card to the *concierge* of the hospital and to ask by name for the surgeon or physician he may wish to see. The value of this privilege is well seen in the experience of a young graduate of my acquaintance who came here last year with the intention of doing further work in nervous diseases. The physician whose service he visited with a card of introduction soon gave him charge of a certain number of beds in one of the great nervous clinics, where he was admitted to the ordinary privileges of the other *internes* as to library, laboratory, and even meals, and where he remained for nearly six months. An informal post-graduate course, if you like, but invaluable in the opportunities it offered. It may be added that the hospitals of Salpêtrière and Bicêtre possess between them several thousand beds available as clinical material.

Paris in fact offers a unique field and unlimited opportunity to the man who wishes to work and who knows what he wants to work at. In my "Handbook to the Paris Medical School"[1] I have endeavoured to sketch the general course that should be pursued, giving a fairly complete account of the details of scientific medical education in Paris and summarising them in a table in the form of a diary.

The visitor's first difficulty is, naturally, where to pitch his tent and this is not lessened by the knowledge that the various hospitals in which he proposes to spend most of his time are considerably scattered. None the less, it may be said that for him the central locality is the so-called Quartier des Ecoles or Quartier Latin on the left bank of the Seine. Here, within a few hundred yards of each other, on the streets running off the Boulevard St. Michel, are the school of medicine buildings with the anatomy rooms and laboratories, the Sorbonne, the Collège de France, most of the medical publishers and booksellers and surgical instrument-makers, and a little further off such important hospitals as La Charité, Läennec, Necker, Sick Children's, the Clinique Baudelocque. Here, too, will be found hotels and *maisons meublées* with furnished rooms and board at reasonable rates. The boulevards St. Michel and St. Germain are the chief thoroughfares of this quarter and countless generations of students have lived in the streets off them, such as the rue des Ecoles, the rue de l'Odeon, and the rue Monsieur-le-Prince where Oliver Wendell Holmes (not to speak of the great Auguste Comte) had his rooms about 70 years ago.

The hotel chosen, the next step is to arm oneself with the *carte d'entrée des hôpitaux* issued gratuitously on presentation of one's card at the offices of the Assistance Publique 3, Avenue Victoria. This card carries a formal request to the various directors of hospitals, &c., to facilitate the visit of their establishment and to give information. While neither absolutely necessary nor always asked for, this card is a veritable passport, especially if the bearer's knowledge of the French language is limited. It is also useful, as on it are printed the names of all the general and special hospitals under the jurisdiction of the Assistance Publique. Next a visit to the buildings of the Faculty in the Place de l'École de Médecine and a glance at the many placards and notices there exposed will show the official courses of lectures and cliniques going on at the time. Many physicians and surgeons who have wards and who may perhaps give special attention to the development of post graduate instruction, having no chair, are unconnected with the Faculty and their names find no place here. Notices of these and other extramural courses will only be found in the hospitals themselves or in the medical journals, such as the *Bulletin Médical*, *La Presse Médicale*, &c. I should strongly advise the new arrival to purchase the last few numbers of one such journal in order to put himself *au courant* with all that may be going on. For the whereabouts of the hospitals, the names of the men on the visiting staffs, the days of operations and ward visits, he must rely upon the *Guide Médical* published in 1900 by Maloine and now a little out of date or my own handbook to which I have already referred.

In the last six years facilities for post-graduate work in Paris have so greatly developed that there is probably now no department in medicine and no period of the year in which abundant opportunities are not available. The invaluable and complete course in bacteriology at the Pasteur Institute is of such duration—three months—that it takes place at most twice in the year and names must be sent in for it some time in advance to Dr. Roux or his assistants. With regard to most of the other courses there is frequently an *embarras de choix*. Thus, at present, during the summer months, between July and September, there are no fewer than four separate practical post-graduate courses in laboratory methods applied to clinical medicine, under the direction and in the wards of Dieulafoy, Landouzy, Cornil, and Brissaud. Similar courses are given in surgery, operative surgery, midwifery and gynæcology, children's, genito-urinary, and tropical diseases, and in most of the specialities. Other official and free courses are given in summer by those temporarily replacing the professor, usually in clinical medicine and surgery. In operative surgery courses may be taken practically all the year round from the prosectors under Dr. Hartmann's superintendence. Five years ago the number of graduates, chiefly foreigners, following these courses of operative surgery was 22; this summer (between March and July) there have been 240. They are divided into several series, thus: (1) operations on the male genito-urinary tract; (2) gynæcological operations; (3) bones and joints; (4) stomach, intestines, liver, &c.; (5) emergency operations; (6) nervous system; and (7) neck and trunk. Valuable clinical experience can also be obtained at the out-door consultation departments of the larger hospitals. These are well organised, the number of patients is large and the number of students is small, the teaching is good, and the morning there is often far more profitable than that spent on the seats of an operating theatre at a distance that makes the finer and more important details of the operation invisible.

In concluding this brief sketch let me add that there are English, Scottish, Irish, and American practitioners in Paris ready to bear a helping hand to any countryman in difficulty or doubt.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8478 births and 4616 deaths were registered during the week ending August 29th. The annual rate of mortality in these towns, which had been 14·3, 15·7, and 15·7 per 1000 in the three preceding weeks, further rose to 16·0 per 1000. In London the death-rate was 14·3 per 1000, while it averaged 16·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 3·5 in Devonport, 8·3 in Bournemouth, 8·7 in Hastings and in Blackburn, 8·9 in Croydon, 9·2 in Leyton, and 9 8 in Willesden, Walthamstow, Bristol, Smethwick, and Swansea; the highest rates were 21·0 in Nottingham and in Burnley, 21·8 in Wigan, 21·9 in Hull, 22·3 in Sunderland, 22·8 in Rotherham, 23·0 in Aston Manor, 25·2 in Middlesbrough, and 26·3 in Sheffield. The 4616 deaths in these towns included 1060, which were referred to the principal infectious diseases, against 717, 887, and 1006 in the three preceding weeks; of these 1060 deaths, 821 resulted from diarrhœa, 62 from diphtheria, 61 from whooping-cough, 60 from measles, 32 from scarlet fever, 22 from "fever," and two from small-pox. No death from any of these diseases was registered in Bournemouth, Devonport, Burton-on-Trent, King's Norton, Coventry, Halifax, or Tynemouth; while the highest death-rates from the principal infectious diseases were recorded in Aston Manor, Birkenhead, Wigan, Burnley, Sheffield, Rotherham, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Sheffield, Middlesbrough, and Sunderland; from diphtheria in Salford and Rotherham; from whooping-cough in Rochdale and Burnley; and from diarrhœa in Aston Manor, Grimsby, Birkenhead, Bootle, Wigan, Bolton, the army is to attract a number of young fellows of limited means into its commissioned ranks who are *really* desirous of making it their profession. It is quite right to throw the responsibility of checking all unnecessary extravagance upon the officer commanding regiments, and this the Commander-in Chief very plainly intimates will be done in future. No one wants to see a lot of mere bookworms as officers, but the barrier of wealth should be removed from young men of physical and intellectual vigour with military tastes, predilections, and ambition.

---

[1] An English Handbook to the Paris Medical School. 1903. London: J. and A. Churchill.

Surgeon-General T. Tarrant, retired pay, late Army Medical Staff, to be an Honorary Physician to His Majesty, vice Surgeon-General A. H. Fraser, retired pay, deceased. Dated Sept. 9th, 1903.

Colonel P. F. O'Connor, C.B., I.M.S., who has been principal medical officer of the British forces in North China, has left Tientsin for India, and has been relieved by Lieutenant-Colonel L. A. Waddell, I.M.S.

The health of the troops in Somaliland is reported to be good.

It is reported that the 2nd Battalion of the King's Shropshire Light Infantry has been attacked by cholera at Ranikhet, Bengal, and that Lieutenant Carter and ten men have died from the disease.

Correspondence.

"Audi alteram partem."

WHAT IS SCIATICA?

To the Editors of THE LANCET.

SIRS,—I wish to thank you most heartily for your notice of my address on Sciatica which appeared in THE LANCET of August 22nd, p. 511. I esteem it a favour that you have given up so much space to the statement of my views in connexion with this complaint and I am greatly obliged for your courteous comments on my heterodox opinions as to the real nature of the pains in cases of sciatica. When I started the campaign against the received explanation of these symptoms I quite saw that I was, so to speak, flying in the face of settled beliefs—beliefs, let me add, unconsciously buttressed by the apparent results of treatment of an anti-neuralgic nature. May I say I fear that a good deal of our pathology is founded on this kind of inverted reasoning—that is, "because so-and-so does good then the disease is necessarily of a kind to correspond with the successful medicaments."

Returning to your leading article, will you allow me in self-defence to reply shortly to one or two points? First, you seem (but in this I may be mistaken) to pooh pooh "references" as regards pain. But is not the majority of pains "referred pains"? All abdominal and many chest pains, for example, are allowed to be of that kind. Take the supreme pain of angina pectoris when the pain goes down the arm, Is that merely an affection of the brachial plexus? Again, "tenderness on pressure," Is there in the whole range of medicine a surer "sign" of the real situation of any disease than that elicited by careful exact pressure over the spot suspected? A third and most important criticism is where you say I deny that there is ever neuritis present. I do not think I quite affirmed that neuritis is altogether and always absent. Indeed, I do not believe it to be so. But I wished to throw down my humble gauntlet against the accepted pathology of sciatica and therefore I may have put my position a little too strongly. You will allow it is very difficult to prove the negative as against any proposition. May I ask my opponents to do me the honour to show that they have at least by careful exploration and examination tried to prove that my views are false and ill-founded.

I have to thank Mr. J. S. Mackintosh for his kind reference to my address. But I hope he will excuse me when I say that I do not see the *sequitur* in the case he gives of rheumatoid arthritis and sciatica. On his own showing the "sciatica" on the side which was not stretched equally recovered with that to which extension was applied. But, in [illegible] sciatic pains [illegible] ss as rheuma[illegible] Surely such deforming changes are decidedly inflammatory and thus likely to cause the symptoms which he classes as being due to "sciatica" I hope with your kind leave to publish by-and-by one or two cases caught in the intermediate stage between "sciatica" and "rheumatoid arthritis." It is all a question of names. If a cure takes place the disease is labeled sciatica, if it does not (as is too often the case, among the labouring classes especially) it is then designated "rheumatoid arthritis," both being merely stages of the same disease although set down at present in two distinct categories. I am sorry the term "barbarous" offends Mr. Mackintosh and others of my friends. But while I adhere to the word itself as the only one I know which expresses my meaning I do not at all affirm that the operations I refer to are unjustifiable. Many such proceedings, as in the days of Ambroise Paré, mark stages on the road of progress.

I am, Sirs, yours faithfully,
W. BRUCE, M.D. Aberd.

Sept. 1st, 1903.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—One might vary an ancient proverb, which says: "Wisdom is the principal thing: get wisdom, and with all thy getting get understanding," into "Logic is a good thing: get logic, and with all thy getting get common sense." As I did not feel justified in my letter to you of August 29th (p. 629), which dealt with the arguments of Dr. A. W. Gilchrist and Dr. J. Wiglesworth, in prolonging that letter so as to deal adequately with the dead-doing letter of Dr. C. Mercier, except to point out that his first objection was simply a piece of pedantry, I therefore ask a small part of your space so as to examine the reasoning of this most profound logician's examination of my reasoning. The first thought that must have occurred to everyone after finishing that logical (?) effusion would be to ask if a logician of the calibre of Dr. Mercier had ever heard of a fallacy called the Fallacy of Accent in which "the erroneous quoting of an author by unfairly separating a word from its context or unduly emphasising a word or italicising words which were not intended to be italicised gives rise to cases of this fallacy." Dr. Mercier disputes my statement, where he thinks I have fallen into the converse Fallacy of Accident, "that no two members of a litter of pups or kittens exactly resemble one another." He asks, "When did ever two kittens or puppies have the same number of legs or tails?" One would have thought that a man like Dr. Mercier, who has written so much on heredity, would at least have known what is meant by a character or trait. However, I suppose I must prove my statement. Permit me for purposes of this proof to make one or two quotations.

> [illegible] Darwinism, p. 81.)
>
> Everyone knows that in each litter of kittens or of puppies no two [illegible] alike in colours, [illegible] who observe them [illegible] their bodies and [illegible] ing, and notably in their disposition They each possess, too, an individual countenance almost as varied when closely studied as that of a human being. (Wallace · Darwinism, p 83)

I suppose it is necessary to point out that these statements are not mere opinions but are based on exact observation and measurement. If Dr. Mercier will read "Domesticated Animals of the British Islands" by Professor Low, "Animals and Plants" by Darwin, and "Darwinism" (especially Chapters III. and IV.) by Wallace, he will not again be in such a hurry in denying the fact of variation or parading his acquaintance with the *fallacia a dicto secundum quid et dictum simpliciter*. Will Dr. Mercier tell us, or is he able to tell us, what cause or causes of variation I have ignored?

With regard to the Fallacy of the Consequent or *non sequitur* as well as the following one, the *petitio principii*, or begging [illegible] exhibits an acquaintance with the [illegible] as his insistence on the tr[illegible] As evolution can only proceed by one or both of two methods, by the transmission of inborn traits or of acquired traits from parent to offspring and by their accumulation in succeeding generations, it is necessary in order to understand them to define two terms, the loose use of which has led Dr. Mercier into his amazing contribution. A *variation* or an *inborn* trait may be defined as one which arises in an organism in consequence of changes previously produced in the germ cell or cells from which the organism sprang; whereas an *acquired* trait may be defined as one arising in the body cells from the action of the environment. It is thus evident that the difference between the two is essentially one of origin. Variations are known to be transmissible; for example, I recently saw a child with a supernumerary little finger on each hand; the father, grandfather, and great-grandfather were each born with the same peculiarity. I know another family where each member has the second and third toes on each foot in their whole extent webbed and this is known to have been the case in the two preceding generations on the mother's side. Many, however, like Dr. Mercier, believe that acquired traits are also transmissible; but even supposing that they were so it would not account for all variations; for example, the supernumerary digits and webbed toes. Now, though a variation always implies a difference between an offspring and its parent an acquired trait does not, for they may both acquire the same thing. Admitting, however, for the sake of argument, that acquired traits are transmissible, the trait transmitted would produce in the germ cell not another acquirement but a variation, since the change would be in the germ cells. There is one possible way in which an acquirement could be transmitted and that is when a mother transmitted to her fœtus the acquirement which she had acquired and that same trait arose in it. If, however, the acquirement is again transmitted it would be as a variation. It will also be obvious that males can only transmit variations, or, rather, can only transmit an acquirement as a variation. Remembering the above definitions, would Dr. Mercier now tell us where in the *petitio principii* I have taken the conclusion as one of the premisses. I am quite prepared to agree with Dr. Mercier "that very little of the logical faculty is sufficient for those who conduct the affairs of a nation." I also agree "that still less is needed to conduct a discussion on a scientific subject;" but it would seem that immeasurably less is needed for those who, on logical grounds, take exception to the reasoning of those who are parties to that discussion.

It must be remembered that neither Dr. G. Archdall Reid nor myself, nor anyone belonging to the Reid school, has ever alleged that parental drinking gives rise to filial drinking. What has been said is this, If the contention of the neo-Lamarckian school is right we will show what the logical conclusion of that contention must be. If a man by reason of his drinking transmits to his son a desire for drink it can only be by way of a variation, and variations, as we know, are transmissible and tend to increase generation after generation. Let us postulate, however, for the sake of argument a man in primitive times with no desire for alcohol. If he now drinks, if the neo-Lamarckian doctrine is correct, he will transmit the desire for alcohol that he has acquired to his son and this, as we have seen, can only be by way of a variation. The son would make a different start in life from the parent, for he would begin with a desire for alcohol, whereas the father did not. If this son now has a son he will transmit to him the desire for alcohol which he himself acquired from his parent, but not only that for the grandson will have an increase of desire, for he has the grandparent's desire plus that due to his own father's drinking, and this increase of desire going on generation after generation would lead to an enormous capacity to enjoy alcohol. Alcohol, as we know from the researches of Dr. J. J. Ridge among others, causes more deaths than any other agent and thus, if the neo-Lamarckian contention is driven to its logical conclusion, the race must become so drunken as at last to lead to its extinction. Instead, however, of postulating a man with no desire for alcohol we begin, as we know all men have begun, so far as we have any information, with a fierce desire for it, and if now to this fierce desire there be added an increase of desire due to parental drinking, the extinction of the race would be swifter in coming if not more certain. It is not, I suppose, necessary to labour the question with regard to filial insanity due to parental drinking, for the same reasoning is to be employed. Here again it would be a variation, &c. Dr. Mercier by his *non sequitur* alleges that the above reasoning is so loose that there is no cogency in it, for, as he says, I have neglected some counteracting circumstances. Will Dr. Mercier tell us what these circumstances are? He must know them when he is able to say I have neglected them. Many, many beside myself, pained at the terrible cruelty of nature, would be glad of any way of escape from this horrible position into which we have been driven. Must we call to him in vain; he who knows; or must we, if no answer is given, conclude that no answer is possible?

With regard to the giraffe's neck and Dr. Mercier's "parity of reasoning," if it be true, as Dr. Mercier holds it to be true, that acquired traits are transmissible and that the long neck of the giraffe is due to former giraffes stretching their necks, I agree with Dr. Reid in "seeing no reason," if Dr. Mercier demands it, "why their necks should not grow as high as the cross of St. Paul's." If, however, the giraffe's long neck be not due to stretching and its accumulation and transmission, but is due to the Darwinian doctrine of selection, there is no reason why it should be longer than it is. It must be kept in mind that there is as great or greater tendency to retrogression as to evolution; also that evolution is not always an extension of the previous evolution: it may be reversed or it may be divergent; indeed, "evolution and progress are not synonymous terms. The survival of the fittest is not always a survival of the best or of the more highly organised. The environment is sometimes such that increase of fitness means degeneration of type and the animal and vegetable world show many instances of degeneration. One brilliant instance is that which has preserved the clue to the remote ancestry of the vertebrate type. The molluscoid ascidian rooted poly-like on the sea beach in shallow water has an embryonic history which shows that its ancestors had once seen better days, when they darted to and fro fish-like through the waves with the prophecy of a vertebrate skeleton within them. This is a marked case of degeneration. More often survival of the fittest simply preserves the type unchanged through long periods of time. But now and then under favourable circumstances it raises the type. At all events, whenever the type is raised it is through survival of the fittest, implying destruction of all save the fittest.[1]"

With regard to the calf muscles and gravitation Dr. Reid has so convincingly and so ruthlessly brushed Dr. Mercier's objections aside as to leave nothing for any other one to say. And now as to the *ignoratio elenchi* or irrelevant conclusion. The statement was made that man's religious systems kept many sober. I replied, exactly so, and they also keep many celibate as well as making them barbarians at the same time. If Dr. Mercier can find a flaw in the reasoning I make him a present of it, *tra la*.

As Dr. Mercier has now had his fling, and as we shall all in the future admit his logical abilities, may I ask him to come to facts? If he can show the unreasonableness, the untenableness, of the position of the Reid school; if he can prove his own position and that of the school to which he belongs, he will be doing a greater service than he perhaps imagines. It was said at the Swansea meeting that the public was looking to the medical profession for guidance in this "horrible fatalism," as Dr. A. T. Schofield described it. How far that is true I do not know, but I do know that it would be more sensible to controvert the doctrines than simply to hold them up to execration.—I am, Sirs, yours faithfully,

Liverpool, Sept. 3rd, 1903. O. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—Curious coincidences sometimes occur. Yesterday (Sunday) morning I read through with great care the recent correspondence on alcoholism and disease and heredity. In the evening, at a church I had never before been in, the preacher took his text from the words, "The leprosy of Naaman shall cleave unto thee *and thy seed for ever.*" Probably, I should think, to the surprise of his hearers, the preacher entered into the question of heredity and disease and the transmission of acquired characters, and did so in such a manner as showed that he had carefully studied the subject. I merely want to point out one aspect of the question which seemed to strike him. He stated that he had frequently come across cases of vice of one kind or another in which the only appeal which seemed to have any effect was the one which begged the sinner "for God's sake, if you care nothing for yourself, think of your children." Referring to the modern teaching on the matter, he said that if it were definitely proved that there was no such thing as transmission of disease or alcoholism from parent to offspring one of the most powerful incentives to health and sobriety would be removed.

---

[1] Fiske: Through Nature to God, p. 81.

I think it is of interest sometimes to note how scientific and medical questions affect the thoughtful men of other professions, especially the clergy, and therefore I mention this.

I am, Sirs, yours faithfully,

Sept. 7th, 1903. M.D. EDIN.

To the Editors of THE LANCET.

SIRS,—May I take from your columns an illustration of the importance of a study of the problems of heredity to the medical profession? In a review[1] of a work on consumption it is written: "He (the author) quotes the statistics of Dr. J. Edward Squire which show that the difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents is very small. Dr. Latham remarks that these figures are remarkable, as the children of tuberculous parents who are the victims of active disease must in most cases, unless the necessary precautions are taken, be more exposed to the risk of infection. The statistics would appear to suggest, he says, that the children of tuberculous parents possess some natural immunity to the disease, for otherwise the percentage of children who develop tuberculosis should be much greater when the parents suffer from the disease than when they do not." I beg leave to say that in the light of a study of heredity these statistics are in no way remarkable, nor is there need for the curiously unscientific "shot" offered in explanation—unless, indeed, one is prepared to deny natural selection. Here in this country of Galileo and Bruno there are those who know not the Copernican theory—shall Darwin escape? Permit me to justify my statement as briefly as possible. Once more we start from the fact that races are resistant to a disease strictly in proportion to their past experience of it. Tuberculosis by weeding out the weak against it during [illegible] England a race com- [illegible] immunity is *acquired* [illegible] but as a race we can flourish in conditions which would decimate another race to which phthisis was a new disease. Until quite recently at least, the stringency of phthisis selection has constantly grown, but has been met by as steady a growth of race resistance through disease selection. The weak being eliminated, the strong against tuberculosis have survived and propagated the race. The factors have not, of course, worked equally throughout the country; in the Scots Highlands, for instance, the rate has for obvious reasons been slower, but the general effect is that we have lived, in regard to phthisis, under conditions which would have been impossible to our remote ancestors.

Contrast this view of our present evolution with the tragic story of the introduction of phthisis into the New World amongst [illegible] it and had undergone no [illegible] suddenly invaded by races [illegible] but had a high resisting power, and who carried with them the conditions of life prevailing in their own land. There was scarcely time for evolution. The bacillus revelled in the virgin soil—whole races were wiped out. Practically every individual attacked was found of low resisting power and succumbed. In England, then, the great majority of people are immune to tuberculosis nowadays under practically all conditions. They may live crowded in dark, ill-ventilated rookeries; their daily exercise may be only a ride in a subterranean railway to and from a sedentary occupation; they may be in ill-health, associate with phthisical invalids, be drunken and depraved, yet only a small minority contract the disease—at least in a diagnosable form. Those who do contract it when weakened by other diseases or depressed by some powerful cause tend to recover, and to-day such cases stand to the credit of many a sanatorium.

In the light, then, of analogy and of a study of the history of disease as it affects races the British islanders are progressing rapidly through stringent selection to a resisting power which might make them completely immune to tuberculosis and lead to the dying out of the bacillus from their midst—a slow and sorrowful process, but nature's, and therefore sure. But man has checked nature. Man himself has begun to relax the stringency of the selection. By means of improved and constantly improving sanitation, active "preventive treatment" of those who spring from tuberculous parents, and by admirable curative measures employed on those whose resisting powers are not too low, the stringency abates and many of the weak who would formerly have perished now survive. And here biology supplies us with an illuminating fact—that cessation of selection is invariably followed by reversion to the ancestral type. Therefore, although man's well-meant interference is beyond doubt a benefit to the individual, it is providing for succeeding generations an increasingly lower power of resistance against the disease. It is unnecessary to follow here with speculations as to the remedy. On the one hand there appears the hope—a vain one to some thinkers—of the absolute banishment of the tubercle bacillus through perfect sanitation. On the other hand stands artificial selection—abstention from procreation on the part of those with weak resistance, with the "tuberculous constitution"—to other thinkers a wicked suggestion. With these data, imperfectly given I fear, it is possible to arrive at a solution of the problem which Dr. Latham finds so puzzling. "The difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents is very small." The child of the tuberculous parent contracts the disease because he inherits a weak resisting power and is often placed in an environment favourable to the development of the disease. Possibly the numbers of these children are reduced somewhat by the carrying out of "preventive measures." But, on the other hand, the ranks of the children born of "non-tuberculous" parents who contract the disease are greatly increased owing to the fact that man's interference is raising an army of *apparently* non-tuberculous parents—i.e., of persons who have not suffered from the disease but who, nevertheless, possess and hand on weak powers of resistance. Thus, then, while a few generations ago "tuberculous parents" meant as now only those who had themselves suffered from the disease, "non-tuberculous parents" meant only those who had escaped the disease solely through their high resisting powers. To-day the "non-tuberculous" parents include also parents who have escaped the disease through the sanitary and other efforts of man and are really of tuberculous stock. Obviously a few generations ago statistics should have proved a very great difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents, and obviously again the enrolment of the "apparently" non-tuberculous amongst the truly non-tuberculous parents has greatly reduced that difference. Therefore Dr. Squire's figures are neither so surprising nor so inexplicable as they appear at first sight. I think this explanation is more in accordance with the facts of natural selection and of the natural history of disease than the somewhat topsy-turvy one that "the children of tuberculous parents possess some natural immunity to the disease"; certainly it seems to me in accordance with the few facts known concerning heredity.

May I, in conclusion, ask how long the facts of heredity are to continue neglected by those who have the ordering of our medical curriculum? Hydropathy and hypnotism, the long despised, are now recognised; but (is the letter "H" unfortunate?) heredity, while the mere term is used in text-books as a cloak to ignorance, is passed by in contempt as a science. I cannot think this attitude is a credit to the profession, and certainly it results in a dead loss to our knowledge—a serious loss to our patients. Not long ago a gentleman possessing the qualifications of M.D. Lond., F.R.C.P. remarked to me, "Heredity! Lord, I never studied *that!*" And only a few weeks ago another gentleman in public debate condemned Dr. Archdall Reid's well-known views as the revival of an old fatalistic theory, altogether shocking! And now we have a text-book on Consumption coming before the public and advancing this "suggestion" (suggestions in modern "science" speedily become beliefs) without, as far as I can discover from my imperfect study of the subject, any ground whatever amongst the facts of inheritance. No body of men stands in so favourable a position for adding to the facts of inheritance as the medical profession; and yet we are permitted to receive our degrees and qualifications without a smattering of the elements of the science. It is a subject on which no one can at present be dogmatic and on safe ground at the same time—the views I have given are, of course, open to correction and, it is unnecessary to state, are not original—and yet in the text-book, in the lecture-room, in the sectional meeting, in the consulting-room even, and the bedroom dogmatism of the barest description, in the absence of knowledge, is rampant. There must be many who, like myself, regret the want of teaching on the subject in university days, who like myself dislike our present ignorance and look forward to more enlightened days. To such, and especially to those who are in touch with our teachers and the directors of our curricula, I appeal to put an end to the present unfortunate state of affairs.

---

[1] THE LANCET, August 22nd, 1903, p. 532.

I am, Sirs, yours faithfully,
Florence, Italy, August 25th, 1903. H. LAING GORDON.

To the Editors of THE LANCET.

SIRS,—Before this discussion dies down and the dust "is lightly laid again" it would be interesting to know whether Dr. G. Archdall Reid has any practical suggestion whatever to make concerning the prevention of drunkenness.

I am, Sirs, yours faithfully,
Mossley, Sept. 1st, 1903. SIDNEY VINES.

SURRA IN THE PHILIPPINE ISLANDS.

To the Editors of THE LANCET.

SIRS,—With reference to your annotation on p. 553 of THE LANCET of August 22nd concerning the occurrence of the horse trypanosoma in rats and the communication of surra to horses by insects, &c., in Manila, I would invite reference to the valuable reports by Dr. Alfred Lingard, imperial bacteriologist of India, who worked out with great thoroughness the conditions of the surra disease in the Bombay Presidency. The connexion of rats and insects with the carriage of the infection was fully dealt with. The volumes containing Dr. Lingard's reports can doubtless be obtained through the India Office.

I am, Sirs, yours faithfully,
EDWARD C. BUCK,
Late Secretary, Government of India Agricultural Department.
Sept. 3rd, 1903.

THE CHRISTIAN HOSPITAL OF CHICAGO.

To the Editors of THE LANCET.

SIRS,—I desire to call your attention to the annotation concerning the "Christian Hospital" of Chicago on p. 416 of THE LANCET of August 8th, in which I feel I have been unjustly treated. I am somewhat surprised to find in the issue of a journal as late as August 8th an article giving credence to the statement that my name was used with my permission in connexion with this nefarious swindle. The affair occurred on May 12th and almost every American journal of prominence has treated the matter editorially and in communications, showing the outrage that has been perpetrated on me. I inclose a circular letter and clippings from the daily papers of Chicago which also show the steps which have been taken to secure the conviction of these criminals. I hope that you will make this matter clear in as forceful a manner as your annotation of the 8th August condemns me. I feel that you would not knowingly do me an injustice and I am sure that when you understand the details you will realise that my position has not been a pleasant one, as something like 80,000 of these circulars were sent out to the members of the American medical profession The publicity which was given them by the lay and medical press aborted the scheme as a money-making project; therefore the perpetrators, in the hope of securing leniency in court, have returned the money to all who purchased their certificates.

I would say, for your further information, that the matter of the division of fees was taken up by the Chicago Medical Society and condemned before it was taken up by the American Medical Association, and I was one of the strong factors in securing the ruling against the division of fees in that society and in bringing the matter before the association to have it included in the principles of medical ethics. It seems to me that if you had seen the original circulars you could not help but recognise that it was not only fraudulent to the profession but an outrage on my name. The perpetrators of the scheme are now held to the grand jury and we hope to succeed in convicting them at the October session. I would refer you to articles as follows: *Journal of the American Medical Association*, May 23rd, p. 1443, and June 6th, pp. 1586 and 1591; *Medical Record*, June 13th, p. 946; *Medical Century*, August 1st, p. 252; *Texas Medical News*, July, p. 467; *American Medicine*, July 18th, p. 85; or to any other reputable American journal that may be at your disposal. Very truly yours,
Chicago, August 29th, 1903. J. B. MURPHY.

*** We had not any idea who the medical man in question was, as no names were mentioned to us. We were perfectly aware that the Christian Hospital was an unprofessional institution, if nothing worse, and alluded to it in terms that showed our opinion of it. The extracts from Chicago papers sent us by Dr. J. B. Murphy show that his name has been used in a monstrous manner by unprincipled persons, against whom he has invoked the protection of the law. He has our most sincere sympathy. We did not see the original circulars.—ED. L.

INFANTILE AND BOVINE TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—Dr. Nathan Raw's interesting paper is a valuable contribution to the subject of infantile and bovine tuberculosis as regards his own observations and experience. His references, however, to the Registrar-General's statistics are not quite up to date. If Dr. Raw had examined the more recent figures of the Registrar-General he would have found that although these are opposed to the often quoted statement of the late Sir Richard Thorne they do in effect offer a confirmation of his main contention that bovine tuberculosis is the principal cause of abdominal tuberculosis in children. In England and Wales the deaths from tabes mesenterica per 1,000,000 of the population increased up to 1880 but since then have steadily diminished from 290 in the five years 1881 to 1885 to 196 in the period 1896 to 1900, the last quinquennium showing two-thirds of the whole decrease. The annual summary of the Registrar-General for 1902 shows that in London the deaths from tuberculous peritonitis and tabes mesenterica have diminished by one-half since 1892—viz., from 1298 in 1892 to 661 in 1902. During the same period there has been a diminution, but a much smaller one, in the deaths from tuberculous meningitis. The latter seem to follow very closely the deaths from pulmonary tuberculosis, increasing and diminishing as the latter rise and fall. I am informed by the medical officer of the infirmary of Woolwich union and other local medical practitioners that they have observed a very great reduction in abdominal tuberculosis in children during recent years. We see thus that whatever was the case in former years tuberculous peritonitis is now diminishing much more rapidly than pulmonary tuberculosis, especially in London. Surely this is what would be expected on the theory that bovine tuberculosis was the chief source of abdominal tuberculosis in children.

Great efforts have been made by many sanitary authorities in recent years to obtain a milk-supply free from tubercle bacilli and cows with tuberculous udders have been almost eliminated from London cowsheds by means of the County Council's efforts. In the borough of Woolwich and probably in many other towns milk coming from the country is now comparatively free from tubercle bacilli. I do not know what are the figures that Dr. Raw refers to as the percentage of cows in London cowsheds infected with tubercle, but they are opposed to the report of the medical officer of health. This report for 1901 shows that out of over 4000 cows in these sheds on the last inspection only seven were infected with, or were suspected to have, tuberculous disease of the udder and the sale of milk from the seven suspected cows was prohibited. No doubt a large number of cases of tabes mesenterica are not really tuberculosis, but I know of no reason to suppose that anything has happened during the last ten years, 1892–1902, seriously to affect the proportion of correct to incorrect medical diagnosis in this respect. I think, therefore, that one is justified in saying that the marked decrease in the total deaths from abdominal tuberculosis and tabes mesenterica indicates a corresponding diminution in abdominal tuberculosis and that this decrease is probably chiefly due to the elimination of milch cows with tuberculous udders and partly, no doubt, to the increasing practice of sterilising milk before consumption. At the present time I find that direct infection (usually from parents) in this borough is the most frequent source of all forms of tuberculosis in children.

I am, Sirs, yours faithfully,
Woolwich, Sept. 1st, 1903. SIDNEY DAVIES.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—In your issue of August 29th "M.D." asks on what observations and experiments I found my statements (1) that tooth powders should not be used as a matter of routine, and (2) that antiseptic tooth powders and mouth washes should be scrupulously avoided, inasmuch as many of the bacteria in the mouth play a useful part as scavengers.

1. The fact that some of the best natural sets of teeth I have seen have never felt the touch of the tooth brush suggests that the latter may injure the teeth by removing the protective film which normally coats them, as well as by injuring the gums, and if such is the case even when the teeth are brushed with plain water, how much more so must it be when they are burnished with powders whereby every vestige of protective covering is effectually removed and the naked surfaces of the teeth laid bare to the attack of decalcifying acids. I can, moreover, scarcely doubt from personal observation—and Dr. Sim Wallace bears me out in this—that the brushing of the teeth with powders tends to cause recession of the gums, "abrasion," "erosion," and secondary caries, and it is probably such considerations as these which have led Mr. Tomes in the last edition of his "Dental Surgery" (p. 258) to say that "in many respects tooth soaps are to be preferred to tooth powders."

2. Accumulating evidence goes to show that a self-cleansing action tends to occur in all the cavities of the human body lined by mucous membrane. This has been definitely proved in the case of the vagina: at birth this canal is free from bacteria, but very soon after several varieties—constituting the normal vaginal flora—take up their abode there. Now it is found that if bacteria are introduced into the vagina before the normal flora is established they persist much longer than if introduced after its establishment, the normal acidophile bacteria of the vagina being inimical to the growth of other bacteria. The nasal cavity is thought by some to possess similar bactericidal properties, and W. S. Miller has recently brought forward evidence suggesting that the oral cavity is similarly endowed.[1] In THE LANCET of August 29th, p. 621, reference is made to his contention that the struggle for existence among the mouth bacteria performs an important rôle in ridding the mouth of injurious micro-organisms. This view is founded on a series of carefully devised experiments, of which the following is one. The mouth was thoroughly rinsed with a culture of bacillus prodigiosus; immediately after a loop of saliva was found to contain 97,600 of the bacteria; after one hour it contained only 1220; after two hours, 127; after three hours, 17; after six hours, 0. The bacillus prodigiosus was thus driven to the wall in the struggle with the normal flora of the mouth, and Miller suggests that the same may be true of such pathogenic bacteria as those of tubercle, cholera, and typhus fever.

Such considerations as these should surely make us pause before using antiseptic tooth powders and mouth washes, lest we be levelling our guns, not merely at the enemy, but at our own trusty warriors.

I am, Sirs, yours faithfully,
Wimpole-street, August 30th, 1903. HARRY CAMPBELL.

To the Editors of THE LANCET.

SIRS,—Dr. H. Campbell, in his recent paper in THE LANCET on Mastication, makes a statement in respect to the use in the mouth of antiseptic tooth powders and mouth washes which to most dental surgeons who have studied the subject is quite contrary to belief, acknowledged practice, and observation. Dr. Campbell asserts that antiseptic powders and mouth washes should be scrupulously avoided, since many bacteria play a useful part as scavengers. No doubt some of the oral organisms subserve this purpose, but still there are always plenty of them left to carry on this work, even although antiseptic mouth washes and tooth powders are used daily. One can always find in such mouths on the oral mucous membrane, in fissures, on and between the teeth, numerous micro-organisms, scavengers and others, although, perhaps, not to the same extent as would be found in the untreated mouth, still numerous enough to get a free culture from or slide preparation. The rapidity with which oral organisms propagate themselves in the intervals between tooth brushing speedily restores the balance of nature in the mouth. A proper tooth powder should possess antiseptic and anti-acid properties which act beneficially, one in counteracting or modifying acid bacterial products, the other by destroying or modifying the microbes themselves—both processes helping to retard dental caries in the mouth, and is a means to an end in keeping the oral cavity in as healthy a condition as possible.

I am, Sirs, yours faithfully,
Sept. 8th, 1903. G. W. W.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—With regard to Dr. T. Carter Booth's letter in THE LANCET of August 29th, p. 632, there is no doubt that boiling destroys the goitrous principle in water. This has also been known a long time, although perhaps not in this country. Another fact known about goitrigenous water is that the further it flows from its source the less dangerous does it become. Both these facts rather favour the bacillary theory of goitre production. In St. Lager's book, which was published in 1867 (p. 193), occurs the following passage which I translate: "Bakewell relates a story of one of his compatriots who resided at Geneva, that the latter noticing his children becoming goitrous took the advice of a medical man and had their drinking water boiled. The goitres disappeared. Later, however, when the family went to live at Lausanne the servants neglected this precaution and the goitres again appeared, but again disappeared when only boiled water was imbibed." I do not think that goitre is due to ammonia salts or free ammonia, as many goitrigenous waters are far removed from such pollution. It is a fact, however, I think, that the diminution of goitre in country districts has in many instances coincided with the disappearance of surface wells as sources of water-supply. Lustig and Carle declare that they never found a goitrigenous water which did not contain nitrous acid. This substance, we know, is produced from ammonia by the action of soil germs—the so-called nitrifying bacteria; and it is, of course, possible that in these bacteria, or in others allied to them, we may have a cause of endemic goitre. The occurrence of goitre in epidemics is also favourable to a bacillary theory.

I am, Sirs, yours faithfully,
LOUIS E. STEVENSON.
Temple Sowerby, Penrith, August 29th, 1903.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

To the Editors of THE LANCET.

SIRS,—My attention has been called to the letters on the above subject and to the article by Mr. J. S. Mackintosh which has given rise to the correspondence.[1] As the brother of one of the clergymen, who was with him the instant after he committed the fatal act and had been continuously with him for the day previous, I am able to form some opinion as to the state of mind which led to his untimely end. In his case, some seven weeks previous to his wife's death, an attempt was made by burglars to enter his house, and I ascertain that as much of the church plate was often in his care he purchased a revolver as a means of causing an alarm should such attempt be made again. The weapon was placed on the safe near his bedside. A quarter of an hour before his death I left him calm and resigned. He then went into the room where his wife's body lay, and on returning to his own room must, I feel sure, have caught sight of the revolver, written the short last message that I found, and in that momentary aberration of mind ended his life. A week afterwards comes the suicide of which Mr. Mackintosh gives so carefully thought-out an account. With him I cannot but fully agree that the suggestion was given to this poor man by my brother's death shortly before, while his mind was aberrant owing to the concussion of the bicycle accident.

But *this* is the point upon which I feel strongly and upon which I earnestly desire your opinion. What useful end can be served by the publication in the general press of full details of such terrible tragedies? Apart from the pain they inflict on all concerned, who have to face the staring when considered only in its bearing on the degeneration of the race.

---

[1] Dental Cosmos, February, 1903.

The Local Government Board and the Destructor.

Some time ago the Gorton district council submitted a scheme for a refuse destructor and a mortar mill to the Local Government Board, and the council has felt somewhat mystified and amused at the answer received. This was to the effect that it was not prepared to give an unconditional assent to the inclusion of the mortar mill, but, if the council would undertake not to manufacture mortar for sale but simply for its own use, and would only sell the surplus, the cost of the necessary plant could be included in the destructor scheme. Mortar can be made out of cinders from the furnace and what is not used by the council can be sold, which, of course, is just what the council wishes.

Sept. 8th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Annual Report of the Medical Officer of Health of Liverpool.

DR. E. W. HOPE prefaces his report on the health of Liverpool during 1902 by stating that by the inclusion of Garston the area of the city of Liverpool had been extended to a total of 14,909 acres, or slightly more than 23 square miles. The population, as estimated at the middle of the year, was 710,337. The birth-rate for the whole city was 34·2 per 1000 per annum; it ranged from 19 per 1000 in the Sefton Park district up to 42 per 1000 in that of Scotland-road. The rate of mortality for the whole city was 21·6 per 1000, ranging from 12·6 per 1000 in the Sefton Park district up to 34·6 in the Exchange district. The high rate in the latter district is partly owing to the presence of numbers of common lodging-houses, the resort of tramps and waifs from all parts. As in former years, a large number of people from all parts of the surrounding districts have sought relief in Liverpool institutions devoted to the treatment of the sick and upwards of 600 of these have died in these institutions, their deaths adding to the rate of mortality in the city. It is interesting also to notice that the number of persons dying in public institutions in Liverpool is greater than in any of the other large towns, such as Manchester, Leeds, Birmingham, &c., a fact which implies a larger amount of poverty than exists in those places. Some valuable statistical tables have been obtained from the Registrar-General relating to the age and sex distribution in the different districts in the city which are reproduced in the report. Improvements in the methods of scavenging and removal of domestic refuse continue; the use of improved ashbins has markedly improved the conditions of the localities in which they have been placed. The condition of the streets in regard to cleanliness is, beyond any question, better than it hitherto has been; no doubt this is partly owing to the fact that the electric-car system of transport is perfectly clean so far as the streets are concerned. Under the terms of the Factory and Workshops Act of 1901 all underground bakehouses require either to be closed or to be certified by the sanitary authority as suitable in all respects for the purposes of a bakehouse. As many underground bakehouses are not suitable, and cannot be made suitable, it follows that these must cease to be used as such. No cases of plague were imported into the city or port during the year 1902, but in the early months of the year (as in the preceding December) the importations of small-pox were frequent. During the first five weeks of the year 20 cases were landed and from time to time during the year these importations continued. An outbreak of typhus fever associated with the insanitary area of Hornby-street gave rise to considerably anxiety, but the outbreak was fortunately suppressed. Dr. Hope deals with the causes of infantile mortality and the efforts made to check them. It is gratifying to know that the medical staff of the children's infirmary and large numbers of other medical men of experience have expressed their recognition of the benefits derived from the sale of humanised sterilised milk. As regards consumption, detailed references to the measures directed against this disease and other forms of tuberculosis are to be found in the text of the report. The system of voluntary notification had been continued throughout the year and in a large number of cases the assistance of the health department had been sought. Many thousands of cards giving instructions to consumptive persons and to those who live with them have been distributed throughout the city and enamelled plates have been fixed in suitable places requesting people to refrain from spitting on the foot-walks, this disgusting and dangerous habit being now recognised as one of the common means of spreading consumption. Good progress has been made with regard to the provision of hospital accommodation. There are at present 925 beds for infectious diseases in the various civic hospitals, but pending the completion of the general scheme already determined upon arrangements have been made with the general hospitals for the isolation of a certain number of cases of typhoid fever.

The Decline of Small-pox in Liverpool.

There are now only 39 cases of small-pox in hospital. During the past six months there have been 972 cases under treatment in hospital. Of these cases 215 showed no signs whatever of having been vaccinated and 57 died. On the other hand, 757 cases were of persons who had been vaccinated and out of this large number there were only 11 deaths, or 1·4 per cent. The number of cases over 30 years of age was 592, of which 171 were unvaccinated and 35 died, while the number of vaccinated over 30 years of age was 421 and only one died. There were 380 cases under 30 years of age, of whom 44 were unvaccinated and 22 died. In other words 50 per cent. of the unvaccinated persons under 30 years of age died. Of the 972 cases treated at Parkhill Hospital not one showed marks of revaccination. This was a most significant circumstance. If revaccination were compulsory in England, as it is in Germany, the probability is that small-pox would eventually be stamped out. The immunity of the staffs of the hospitals was a very important feature. At the hospitals the staffs who came in contact with the small-pox cases remained absolutely immune and as free from the disease as if they had been miles away from the patients. These facts show the necessity of a new Bill being brought in giving health authorities powers to compel people to be revaccinated when they had been in contact with small-pox cases.

Birkdale Infectious Hospital.

At the Birkdale town-hall on August 26th Dr. S. W. Wheaton, Local Government Board inspector, held an inquiry into an application of the Birkdale urban district council for sanction to borrow £2750 for the provision of an infectious diseases hospital. It is intended to make provision for 18 beds. The medical officer of health said the accommodation was much needed and asked for a speedy reply from the Local Government Board. The site for the proposed hospital was visited by the inspector.

The St. Helens Hospital Extension.

The sum of £8630 has already been promised in response to the appeal of the committee for funds to assist in meeting the expense of the enlargement of St. Helens Hospital, the total cost of which is expected to reach £18,000.

New Liverpool Magistrates.

Amongst the names of the 17 gentlemen who have been recently appointed to the commission of the peace for the city of Liverpool are those of Dr. Richard Caton, one of the consulting physicians to the Liverpool Royal Infirmary; Principal A. W. W. Dale, of the new University of Liverpool; and Mr. John Lawrence, one of the most active members of the committee of the Royal Infirmary.

The Expedition to the Congo for the Investigation of Sleeping Sickness.

The medical expedition to the Congo sent out by the King of the Belgians in conjunction with the Liverpool School of Tropical Medicine to investigate cases of sleeping sickness and other tropical diseases sailed from Southampton on Sept. 4th in the Elder-Dempster liner *Albertville*. The expedition, which consists of Dr. J. E Dutton, Dr. J. L. Todd, and Dr. C. Christy, prior to embarking lunched at the South-Western Hotel in company with a number of local commercial gentlemen and representatives of the Liverpool School of Tropical Medicine, including Major Ronald Ross, C.B., F.R S., and Professor Rubert W. Boyce, F.R.S., Sir Alfred Jones, K.C.M.G., the chairman of the school, presiding. In the course of the speeches which were delivered reference was made to the importance of the research and to the risks of the members of the expedition in undertaking the task, and an appeal was made for practical aid in carrying out the work. Telegrams were read from the King of the *Belgians* and *Mr. Chamberlain*, wishing the expedition every success. The mayor of Southampton expressed the indebtedness of the community to the members of the expedition and said that a mission of greater importance had never been despatched from this country.

Sept. 8th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Butchers and Tuberculous Meat.

REFERENCE has been made in THE LANCET of August 8th, p. 428, to the action of the butchers of Glamorganshire and Newport in connexion with the guaranteeing of cattle free from tuberculosis. Conferences have been held between farmers, cattle-dealers, and auctioneers on the one hand and butchers on the other with a view to arrive at a common understanding on the matter, but as no agreement has seemed possible the butchers, at a meeting held at Cardiff on August 28th, passed the following resolution :—

> That in consequence of the serious loss sustained by butchers purchasing cattle, sheep, pigs, and calves which, on being slaughtered, are found to be affected with tuberculosis or other disease and therefore [illegible] the time has arrived when [illegible] calves and pigs of not less [illegible] not less value than £1 per [illegible] private treaty, shall be guaranteed by the vendor free from tuberculosis or any disease and that steps be taken to enforce the demands of the Allied Associations (of Butchers).

Small-pox.

Cardiff has been free from small-pox since the end of July and Swansea has been free since May. There were 17 cases during July in Pontypridd, which town is now free from the disease, but during August three cases occurred in the adjoining district of Mountain Ash. At Brynmawr, in Monmouthshire, a case was reported at the end of August.

A New Asylum for Worcestershire

The asylum which was built in 1852 at Powick, near Worcester, for the city and county of Worcester has from time to time been increased until there is at the present time accommodation for 1200 patients. The population of the whole county is now about 500,000 and is increasing at the rate of nearly 8000 annually. For several years past the county council has been aware of the necessity either for further increasing the Powick Asylum or for establishing a second institution, and the latter course was eventually decided upon. On Sept. 3rd the foundation-stone of new buildings was laid by the Earl of Coventry. The site of the proposed asylum is about two miles from Bromsgrove on the Barnsley Hall estate of 324 acres which was purchased by the county council for £17,000. The administrative accommodation is to be sufficient for 1200 patients, but for the present there will be actual asylum accommodation for 254 male and 316 female patients. Included in the scheme are a chapel, isolation hospital, residence for medical superintendent, and eight cottages for attendants. The buildings are to be completed and furnished by January, 1906, and the cost is estimated at £216,000.

Memorial to Mr. John Griffith Lock, Tenby.

Mr. Robert Lock, M.A., a solicitor of Tenby, has presented to the managers of the Tenby Cottage Hospital a cheque for £200 for the endowment of a bed in the hospital in memory of his father and mother and of his brother, the late Mr. John Griffith Lock, M.R.C.S. Eng., L.R.C.P. Lond., who was instrumental in founding the hospital and who was also the first medical officer of health of the borough. During the 25 years for which Mr. Griffith Lock held office as medical officer of health a water-supply and a complete sewerage scheme were provided for the town and the general sanitary condition of the borough was brought quite up to the requirements of the present day.

Vaccination Expenditure.

At a meeting of the Langport (Somersetshire) board of guardians held on August 25th it was reported that during the four years prior to the date when the last Vaccination Act came into force £184 were paid to the public vaccinators for 957 vaccinations and that during the four subsequent years there were 1147 primary vaccinations and 81 re-vaccinations for which the public vaccinators received £757. It was decided to suggest to the Local Government Board that a revision of the fees should be made, on the basis of 5*s.* for a primary vaccination if the operation is performed within the parish in which the public vaccinator resides and 7*s.* 6*d.* if it is performed in any other parish.

Death of Mr. Andrew Buchanan Blair, M.B., C.M. Edin.

Through the death of Dr. Andrew Buchanan Blair on August 30th, at the early age of 33 years, the medical profession has lost one of its most promising members. Dr. Blair had practised for about four years in Banwell, Somerset, where he was one of the medical officers to the Axbridge union and to several friendly societies. He leaves a widow and one son.

Death from eating Yew Leaves.

At a meeting of the Yeovil board of guardians held on August 29th a letter was read from the medical superintendent of the Wells Asylum in reference to the death of a lunatic, stating that the symptoms indicated cerebral apoplexy, but that the post-mortem examination disclosed a quantity of yew leaves in the stomach. Yew was also found concealed in the man's clothing, but how he became possessed of it the writer had been unable to ascertain as the deceased had been confined in that part of the institution where no yew trees grew, but in all probability it was brought by some other patient. The guardians, who had previously considered that there might have been some laxity on the part of the asylum authorities, expressed themselves as fully satisfied with the explanation.

Sept. 8th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Girgenti Inebriate Reformatory.

The committee of the corporation of Glasgow, of which Mr. John Carswell is convener, has issued its second annual report (1902) on the work of the certified inebriate reformatory known as "Girgenti Home." While the home is licensed for 58 inmates, 50 beds are provided and although 40 patients were in residence at the end of 1901 at other seasons the home was practically full. The 50 beds above referred to are not all in the principal part of the home, the managers having in the month of February furnished one of the dwelling-houses at the farm-stead and erected six beds therein. This house has been fully occupied nearly all the year and the particular feature of this departure is that it gives an opportunity to those resident therein to live under conditions more resembling home life and at the same time grants them a kind of modified parole. The number of patients passed into the home as at Dec. 31st, 1901, was 46; during the year 1902 20 new admissions were made, making 66 as the total number on the register. At the end of the year 1902 40 were in the home; 10 were "licensed out." Of the 40 resident, three had been in the home for over 18 months, 16 for over one year, and the remainder for one year or less. The effect of treatment is indicated by the fact that 17 have been classified as "hopeful" 12 as "doubtful," and six as "hopeless"; the remaining five were resident for only a short period and were therefore not included in this classification. Of the ten licensed out under the care of guardians nine were doing well; the managers in this part of the work have met with much difficulty in finding suitable situations and guardians for these. Of the total number (66) five were transferred to the State Reformatory as incorrigible to discipline, seven escaped (four of the licensed-out cases and three from the home), and one died. The managers have consistently, while maintaining the discipline of the home, allowed the inmates a fair amount of freedom. They regret that the escapes for the year are so numerous. These, while involving a great deal of trouble and annoyance, can scarcely be avoided unless resort is made to methods adopted in prison life, which is objectionable, or increasing the staff, which would entail a considerable increase in expenditure. With regard to the employment of patients while in the home no difficulty was experienced in finding work. The committee in submi [illegible] out that the Act (the Inebriates A [illegible] committal to certified inebriate [illegible] who have been convicted of [illegible] arising out of drunkenness, three times within the preceding 12 months and who are habitual drunkards; and (2) persons sterilised beforehand, are opened by merely pulling a thin string and can be immediately applied and fastened upon every wound. A wounded man may in this way pass several hours without danger waiting for the permanent dressing which will be performed at the ambulance. In this way a considerable number of wounded men may be attended to at the dressing station in a very short time. The stock of materials being reduced to a full supply of these packets, which are all alike, it will be possible to do away with the inconvenient baskets in which materials for making up dressings are kept separate. Not to speak of the difficulty of carrying them, a great loss is occasioned by these baskets being left open during the hurry of moving. Again, if one basket goes astray or is emptied no complete dressing can be carried out at the station. This question is one of great importance and may become urgent when patients are transferred from the ambulance to the field hospital on the evening after a battle. The field hospital then becomes stationary until these patients either recover or are discharged, whilst the ambulance now unoccupied once more follows its division. At the present time the articles kept in stock in these two units are quite distinct, and yet they ought to be identical and interchangeable. The staff of the field hospital, however, consists exclusively of officers of the reserve and the territorial army, whilst the officers of the mobile ambulance are surgeons on active service.

Sept. 8th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Disposal of Excreta in Cairo.

Apropos of the discussion on the disposal of excreta in the tropics, recently held in the Tropical Section of the British Medical Association meeting at Cardiff, it may not be uninteresting to describe what provision is made in this respect in subtropical countries such as Egypt. In general it may be said that there is a system of water-closets which discharge their contents into cesspits. In Cairo these cesspits are sunk in the ground and are for the most part substantially built of brick lined with cement. They are emptied as occasion demands by means of a steam pump and exhaust pipe, the contents being pumped directly into iron carts shaped like large boilers and securely sealed and valved. The excreta are thus conveyed to a sewage farm some six miles to the south of the city and there scientifically treated. As a rule this system works well and it is rare that any epidemic is traceable to the condition of the cesspits. Hitherto provision has been made for the construction of cesspits on a small piece of vacant land adjoining the building; but latterly, owing to the increase in the value of building property and in the rents of flats in Cairo, owners of land are very generally adopting the practice of building over every inch of land available, with the inevitable result that the cesspits have to be constructed in the basement. It is extraordinary that this should be so but it is nevertheless perfectly true, and of the many new buildings in Cairo the great majority have no provision whatever for cesspits other than this. Architecturally many of these great blocks of flats are wellnigh perfect, but what can be said of the sanitary arrangements when the cellar contains several large cesspits? One of these blocks, conspicuous on account of its elaborate decoration, is flanked by two ornamental towers placed at a short distance from either end of the building. To the general public these towers have some claims to architectural beauty, but to the sewage company officials they serve a much more practical purpose as they indicate the position of the cesspits deep down in the basement. Some attempt is made to ventilate the pits by air shafts and ventilating pipes, but this, in a building four or five storeys high, not including the depth of the bottom of the pits below ground level, cannot hope to be very satisfactory and the least flaw in a pipe in any part of its length may be fraught with serious consequences. Another block of buildings belonging to the same proprietary as that just mentioned is built on similar lines, and although it has only been occupied for rather more than a year a large sum of money has been already spent to prevent the poisoning of the various suites of apartments from leaking ventilation pipes and after all the owner has found himself compelled to purchase a piece of adjoining land on which to construct new cesspits. At the present moment the foundations of a large block are being dug and in full view of all the passers-by three large brick cylinders have been built before anything at all has been done to the foundations. These are the cesspits and they will be immediately under the centre of the house, and the ventilating pipes to be of any efficacy at all must pass upwards through the middle of the building. What the condition of all these buildings will be in a few years' time it is difficult to imagine; and the pity of it all is that this state of things comes about from the absence of all laws and regulations providing for the adoption of proper sanitary principles in the building of a dwelling. The Sanitary Department is quite powerless to prevent these scandals and menances to the public health; and such is the assurance—to put it mildly—of the proprietors of such buildings that they do not hesitate for a moment to request Price Bey, the engineer of the department, to give them a certificate to the effect that the sanitary arrangements in their property are perfect. In spite of the greatest care in the emptying of the pits there must come a time when a more thorough cleansing, or even a repairing, will be necessary and the problem is how is this to be done? In each of the two worst examples of these insanitary houses three medical men have flats. It is to be hoped that as the drainage of Cairo becomes an accomplished fact the water system will become universal; but this desideratum is likely to be long deferred, for, with the exception of a small area riddled with pipes for surface flood waters, drainage in Cairo is practically non-existent. The sanitary arrangements of the large hotels in Cairo are as perfect as is possible in the circumstances. The cesspits are well away from the buildings and are regularly and carefully emptied and efficiently ventilated. In one instance, from considerations of construction and position, the dry-earth system has been adopted and, being carefully supervised, works well. The excreta are buried in the desert at a considerable distance from the establishment. Of the sanitation and sanitary arrangements among the natives in Cairo and generally throughout the country it were best to be silent, after having expressed our deepest gratitude to the Creator for the existence of the two great sanitary agencies of the country, the sun and the Nile. That it is almost impossible to instil rational sanitation into the native mind is abundantly evident from the following. A late Director-General of the Sanitary Department, on relinquishing his appointment and taking up new duties, rented an office from his former secretary who had invested his savings in house property. His disgust may be better imagined than described when he found that in spite of a long course of training in practical house and hospital sanitary arrangement the aforesaid secretary had deliberately installed in his own property every sanitary abomination possible without the least scruple, acting entirely on the principle that, after all, the way of his forefathers was the best, whatever modern scientific sanitation, embodied in the Director-General of the Sanitary Department, might say to the contrary.

The Decrease of Stone in the Bladder.

During the last four or five years there has been a very marked decrease in the number of cases of stone in the bladder in Egypt and at the present moment less than half the number are admitted to Kasr-el-Aini Hospital than was the case ten years ago. It is not that the conditions of life of the people are at all different; it appears to be due to the supply of sufferers becoming exhausted. Owing to the increased facilities of travel and the confidence of the natives in the lithotrite—the stone engine, as they call it—during the last few years they have come in large numbers to the hospitals, and especially to Kasr-el-Aini, until now there are not many more cases of stone left. Certainly not more than 200 cases were operated upon in Cairo during the last 12 months.

Malta or Mediterranean Fever.

In the last year and a half several cases of typical Malta fever have been observed in Cairo and during this summer cases have been met with even as far south as Khartoum. The serum tests have been applied with positive results and although no fatal cases have hitherto been reported several patients have been severely ill and for some considerable time after the acute symptoms have subsided have had an irregular afternoon temperature, even for several months. As elsewhere, treatment by quinine seems to be quite useless. It seems probable that many cases formerly called dengue fever were really instances of Malta fever.

The Cattle Plague.

The cattle plague is sensibly decreasing everywhere. It seems unlikely that there will be any opportunity of testing the serum locally manufactured to any extent in this epidemic owing to the difficulty in determining the correct dose and in standardising the serum. Good work is being done at the serum farm at Abbassieh by Professor W. St. Clair Symmers and his assistants, but very rightly no steps are being taken to supply serum until repeated experiments prove the efficacy and the safety of the inoculations. It is to be hoped that the serum farm will become a permanent institution so that a good supply of preventive serum may be always on hand in the event of a future epidemic. Large sums of money are being distributed by the Government as compensation for deaths caused by the injection of the animals with the faulty serum from Constantinople.

Bubonic Plague.

Isolated sporadic cases of bubonic plague are reported from certain districts, particularly Alexandria and Damietta, but the prospects of a plague-free season are promising. A report recently issued by the Sanitary Department shows that from the beginning of 1903 to the end of July there have been 174 cases, of which 79 terminated fatally. Of the 26 Europeans affected 11 recovered as did 68 out of the 148 natives. No less than 26 deaths took place out of hospital, showing that there is still a difficulty in securing cases at an early stage, the danger being that a case that is not found until the patient is moribund or actually dead may have been the means of infecting many others.

Cairo, August 30th.

NEW YORK.

(FROM OUR OWN CORRESPONDENTS.)

Transmission of Yellow Fever.

THE United States Yellow Fever Commission, after six months' study, has reported on the transmission of yellow fever to the following effect: (1) that the bacteriological examination of the blood of cases of yellow fever during life and the blood and organs at the necropsy, performed immediately after death, in uncomplicated cases is negative; (2) that the stegomyia fasciata when contaminated by feeding on a case of yellow fever 41½ hours after the onset of the disease and subsequently fed on water and sugar for 21 days, one and a half hours, can, when permitted to feed on a non-[illegible] ere attack of the disease; [illegible] itaminated by yellow fever [illegible] made into sections, and appropriately stained, presents with regularity a protozoan parasite, myxococcidium stegomyiæ, that can be traced through a cycle of development from the gamete to the sporozoite; and (4) that the stegomyia fasciata fed on blood from a case of malarial fever, on normal blood, or artificially fed does not harbour the parasite indicated in conclusion 3.

Value of Preventive Inoculation for Plague.

A medical correspondent of the *Medical Record*, writing from Manila, contrasts the method of control of the disease at Hong-Kong and Manila as follows. While the authorities in Hong-Kong are making every effort to place the city in good sanitary condition and to exterminate the rats, they have not resorted to the wholesale preventive inoculation against plague which seems, far more than anything else, to have reduced the disease in Manila. The Chinese in Hong-Kong are opposed to all sanitary measures, but particularly object to inoculation, and the authorities seem to have hesitated to excite still further opposition. Experience in Manila goes to show that inoculation with antiseptic prophylactic virus, repeated in ten days, is as certain a preventive of plague as vaccination is of small-pox. It has been made compulsory with respect to all the 60,000 Chinese in Manila and during the last two months a large proportion of these have been inoculated. The epidemics in Hong-Kong and Manila started at the same time and the number of cases in both cities progressively increased at the same rate up to the time systematic inoculation was instituted at Manila. The Chinese in the worst infected districts were inoculated first and the decrease in the number of cases was not only great but was noticeable within a few days. Inoculation was begun about April 20th and during that month there were but 52 cases, while in Hong-Kong the number of cases more than doubled. In Manila the cases for May fell to 25, while in Hong-Kong the total for the month was nearly 500 cases. In Manila the number of cases up to the 19th of the month was nine, while the latest report from Hong-Kong shows 136 cases in one week. The writer concludes that from experience there would seem to be no question that while general sanitation and rat-catching are of importance by far the most efficient agent in combating the disease is found in systematic and thorough inoculation of the class of persons who are most liable to contract the infection.

Investigation of the Bahama Islands.

The Johns Hopkins University and the Baltimore Geographical Society sent an expedition of investigation to the Bahama Islands, the medical department of which was placed in charge of Dr. Penrose. During the investigation 1100 cases of sickness were examined. It was found that the natives have but little medical treatment owing to their poverty. Skin diseases, and especially leprosy, were found to be very prevalent. No effort is made to prevent the spread of leprosy and many instances were noted where persons suffering from that disease were engaged in the sale of provisions, in piloting vessels, and in other pursuits. No cases of yellow fever were discovered and but two cases of malaria were recognised. Many species of mosquito were secured for subsequent study. A special feature of the work of the medical department was the study of the degenerates of Abaco, descendants of the Torys, who closely intermarry. The results of this expedition promise to be of much interest.

Quarantine Regulations against Lepers.

The quarantine regulations of the principal ports of the United States have been very lax in the case of lepers but stringent rules will hereafter be enforced against vessels arriving with this class on board. Pratique will not be granted until the leper with his or her baggage has been removed from the vessel to the quarantine station. If the leper is an alien passenger and the vessel is from a foreign port the case will be certified as a leper and reported to the nearest Commissioner of Immigration. If the leper is an alien and a member of the crew and the vessel is from a foreign port the leper will be detained at the quarantine station at the vessel's expense until taken aboard by the same vessel when outward bound. Such cases of leprosy should be promptly reported to the collector of customs at the port of arrival of the vessel and the collector will exact a bond from the vessel for the re-shipment of the leper upon the departure of the vessel.

A Tuberculosis Exposition.

It is proposed by the Maryland Public Health Association and the Tuberculosis Commission appointed by the governor of that State to arouse public and professional interest in that State and in the country at large in a tuberculosis exposition to be held in Baltimore. The basis for the exposition will be the investigations of the Tuberculosis Commission into the cause, the prevalence, and the distribution of human tuberculosis in that State, its influence on the public welfare, and the best methods of restricting and controlling the disease. The commission is taking a census and making a special effort to determine in each individual case the cost incident to the disease to the individual, the family, and the State. The medical questions involved, the importance of habits, occupation, and housing conditions, are under consideration. The ultimate purpose of the exposition is to determine the proper legislation, municipal, State, and national, to be recommended, some definite line of prophylaxis, as well as measures relating to the care and cure of both advanced and incipient cases of pulmonary tuberculosis.

The Liquor Problem in the United States.

A valuable series of reports on the above subject have been published in the United States since 1897. They were published under the direction of a subcommittee of what is known as the Committee of Fifty. The Committee of Fifty [illegible] of this series of reports [illegible] editorship of Dr. John S. Billings, and treats of the physiological aspects of the liquor problem. The investigations, the results of which are included in this work, were made under the direction of Professor W. O. Atwater, Dr. Billings, Dr. H. P. Bowditch, Dr. R. H. Chittenden, and chances of septic absorption. The renewed growth of epithelium over a recent burn is in no way impeded by the acid and I have never seen signs that any harmful absorption has taken place. If the sloughing process is extensive and fœtid, picric acid will probably prove ineffective, for it cannot penetrate deeply, since its action is altogether a *surface* one. It is better in such cases to apply antiseptic fomentations until the sloughs have separated and the wound has cleaned up. The discharge from a burn wound will be found to diminish markedly under this treatment, while the symptoms of wound absorption will be correspondingly minimised. It will be sufficient to dress clean wounds once in 24 hours, and the only drawback that I can urge against picric acid is that it is apt to dry the lint on the wound and thus to be injurious to the new epithelium and cause pain during the dressing. To meet this later defect I have lately used an ointment composed of one drachm of picric acid to one ounce of vaseline or lanoline. This I find will keep a wound sweet, lessen the discharge, and promote healing very successfully, and I have found it useful not only in burns, but in wounds also, with much loss of skin. Picric acid has been objected to because it stains. A good wash immediately after dressing a patient will, however, almost entirely remove it from the hands, while any marks on sheets, &c., will all come out at the laundry. I have used picric acid with success in certain other lesions, especially in onychial troubles, and have recorded the same in the *British Medical Journal* of Feb. 21st, 1903. From practical experience of this remedy I think one can claim that it has unusual properties among external medicaments. While it possesses marked antiseptic qualities by reason of the drying and hardening of the tissues that it produces, it has at the same time no injurious or irritant action on delicate, young, growing epithelium. Its anæsthetic effects still further enhance its value.

I am, Sirs, yours faithfully,

Sept. 1st, 1903. F. VICTOR MILWARD.

To the Editors of THE LANCET.

SIRS,—I see that a correspondent has requested information regarding the use of picric acid in burns. I will admit that picric acid is the best dressing for superficial burns but its effect must be carefully watched. I had always scouted the idea that toxic symptoms could follow the use of solutions of this substance until one case presented itself. A saturated watery solution was applied to an extensive steam burn and it had its usual beneficial effect. The extent of the burn made recovery in any case very problematical. After about three days' application of this dressing a brilliant red "measly" rash developed. The temperature was very high; and the condition of the patient was critical. The rash spread over almost the entire body. The urine was of a very dark greenish hue. The patient died comatose. This patient had been seen by several physicians who were unable to account for the rash on other than the septic theory of its origin. It was certainly neither the rash of measles nor that of scarlet fever. This case made a deep impression upon me and I had the suspicion that the disturbance depended, to some extent at least, upon the picric acid. I had employed this solution in many cases in the wards of the Western Infirmary. Eventually to diminish the frequency of the dressings dried picric gauze was employed with even better results. About 18 months ago I employed picric acid dressing in solution to a burn of the arm and leg. Again the same rash developed as in the previous case and the general disturbance was extreme. The patient was treated with large doses of carbonate of potassium and was flushed out with large amounts of fluid. Recovery was rapid. This second case has convinced me that the picric acid as a dressing in burns, though most valuable, has to be employed with caution to large areas. These are the only two cases which I have observed among many hundreds so treated, but they will not deter me from continuing the use of picric acid in most burns and in the host of other conditions for which I think it is specially indicated as a dressing.

I am, Sirs, yours faithfully,

Sept. 9th, 1903. ALEX. MACLENNAN, M.B. Glasg.

THE DUTIES OF AN UNQUALIFIED ASSISTANT.

To the Editors of THE LANCET.

SIRS,—I have been dispenser, with the Apothecaries' Hall qualification, to a medical man for the last 20 years and during that period I have been in the habit of extracting teeth on behalf of my employer. It is now suggested that owing to some, to me unknown, recent legislation I by making extractions am committing an illegal act and that my employer is thereby liable to censure by the General Medical Council. I should be glad of your opinion upon the matter and, as doubtless many other dispensers are similarly placed, perhaps you will insert your opinion in an early issue of your journal? Thanking you in anticipation,

I am, Sirs, yours faithfully,

Sept. 7th, 1903. DISPENSER.

*** An unqualified assistant cannot do the work of a registered medical man save under the immediate supervision of his principal. This is the rule of the General Medical Council.—ED. L.

INCOME-TAX OVERCHARGES.

To the Editors of THE LANCET.

SIRS,—That hardy annual the blue notice of charge having begun to make its appearance, will you permit us to remind your readers that if they are dissatisfied with their assessments they can appeal against the same to the commissioners for special purposes at Somerset House. The principal occupation of these gentlemen is the hearing of appeals, and not only do they understand income-tax as no local commissioners do but they can be relied upon to treat appellants with courtesy and to see that they get fair play.

Oct. 5th next is the last day for giving notice to set off a loss in business against income from any other source.

We are, Sirs, yours faithfully,

THE INCOME-TAX ADJUSTMENT AGENCY, LIMITED.

Poultry, London, E.C., Sept. 8th, 1903.

MEDICAL SUPERSTITIONS.

To the Editors of THE LANCET.

SIRS,—In view of the interesting lectures delivered by Dr. J. F. Payne on the History of Medicine (THE LANCET, June 27th, p. 1793, and July 4th, p. 6, 1903), the following narration of a superstitious mode of curing disease should prove instructive. I quote it from the well-known classical work, "White's Natural History of Selborne," edited by Jardine (Routledge).

> P. 196.—"In a farmyard near the middle of this village stands, at this day, a row of pollard ashes, which by the seams and long cicatrices down their sides manifestly show that in former times they have been cleft asunder. These trees when young and flexible were severed and held open by the wedges, while ruptured children, stripped naked, were pushed through the apertures, under a persuasion that by such a process the poor babes would be cured of their infirmity. As soon as the operation was over the tree, in the suffering part, was plastered with loam and carefully swathed up. If the parts coalesced and soldered together, as usually fell out, where the feat was performed with any adroitness at all, the party was cured, but where the cleft was continued to gape the operation, it was supposed, would prove ineffectual. Having occasion to enlarge my garden not long since, I cut down two or three such trees, one of which did not grow together."

I am, Sirs, yours faithfully,

SHIAVAX K. N. KABRAJI, L.M. & S.

Bombay, August 8th, 1903.

MEDICAL POSTS IN THE MERCANTILE MARINE.

To the Editors of THE LANCET.

SIRS,—Some few weeks ago there appeared in THE LANCET an advertisement asking for applicants for the post of surgeon to the ships of the Booth Line. I shall be pleased to know from some of those who were applicants what sort of a reply was received.

I am, Sirs, yours faithfully,

Sept. 7th, 1903. MEDICUS

◆

F. B.—The data given are insufficient to enable us to give a fair valuation. Much depends on the class of practice and the total amount of book-debts in proportion to the whole practice and whether the practice is large or small. In Case 1 the value of appointments would be almost their face value less about 5 per cent., but patients' accounts might be worth anything from 7s. 6d. to 18s. in the pound. In Case 2 the debts would be worth probably 25 per cent. less than in Case 1 owing to their age. It would be far better, however, to have them properly valued by an expert in such matters.

Rusticus.—Rent in London, whether for a flat or a house, depends almost entirely upon locality. A flat of three rooms in Mayfair will be 30 times as expensive as a flat of ten rooms in an unfashionable suburb. Our correspondent should settle in his mind where he wants to live and communicate with the house agents of the neighbourhood, whose names can be found in the Post Office Directory.

Umbilicus.—Umbilical hernia in infants frequently undergoes spontaneous cure. As a rule no pad is required, but the edges of the umbilical opening should be approximated by a piece of strapping applied transversely. Circumcision may be required in a male infant with a long and narrow prepuce.

I. G.—A duly qualified and registered medical man can sue for the recovery of fees for dental work in the same manner as for any other branch of medical practice. We do not think that a practitioner should call himself "dental surgeon" unless he holds a special licence in dentistry.

H. E. L.—Certain agents provide for the situation by definitely pointing out that if future engagements are obtained through their original introductions they expect their fees. Where no such arrangement is entered into the medical man must act as his private feelings suggest to him.

W. H. B.—We cannot undertake to give an opinion. Our correspondent had better communicate with the Local Government Board, giving details as to the regulations for admission to the home in question and the terms upon which he holds his post.

F. L.—Our correspondent's best plan is to consult the medical attendant of the patient in question. A list of homes for incurable and chronic cases of illness will be found in "Burdett's Hospitals and Charities"

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a m. by Steward's Instruments.)

THE LANCET Office, Sept. 10th, 1903.

Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks at 8 30 A.M.
Sept. 4	30 08	S.E.	...	120	75	57	58	61	Hazy
" 5	29 83	S.	1 53	107	70	61	62	63	Raining
" 6	30 10	S W.	...	81	65	53	52	56	Dull
" 7	30 22	WSW	0 03	103	70	51	52	54	Overcast
" 8	30 13	S W.	...	104	67	54	57	61	Cloudy
" 9	29 74	W.	0·18	118	67	59	61	64	Raining
" 10	30 00	N.W	0 05	100	59	47	50	54	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3 30 P.M.), St. George's (2 P.M.), St. Mary's (2 30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2 30 P.M.), West London (2 30 P.M.), London Throat (9 30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's [illegible] West-minster ([illegible] College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2 30 P.M.), [illegible] Metropolitan (2.30 P.M.), London Throat ([illegible]

WEDNESDAY (16th).—St. Bartholomew's (1.30 P.M.), University College [illegible] ng Cross [illegible] College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9 30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2 30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9 30 A.M.), Cancer (2 P.M.), Throat, Golden square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (17th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St [illegible] Middlesex [illegible] est [illegible] so- [illegible] at, [illegible]).

FRIDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3 30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing [illegible] St. Mary's [illegible] Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (19th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s*, by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them! Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are :—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

During the week marked copies of the following newspapers have been received: *Ross Gazette, Halifax Evening Courier, Aberdeen Daily Journal, Northern Daily Mail, Yorkshire Post, Liverpool Daily News, Bristol Evening News, &c.*

Communications, Letters, &c., have been received from—

A.—Messrs. Adlard and Son, Lond.; Messrs. Arnold and Sons, Lond.; Messrs. Armour and Co., Lond.; Messrs. Allen and Hanburys, Lond.; A. R H.; A. E. G.; Mr. W. F. Abbott, Woolacombe Bay.

B.—Mr. C. Birchall, Liverpool; Messrs. Bayliss, Thomas, and and Co., Coventry; Burton-on-Trent Infirmary, Secretary of; Messrs. Burroughs, Wellcome, and Co., Lond.; Barnwood House, Gloucester, Medical Superintendent of; Birmingham Ear and Throat Hospital, Secretary of; Mr. T. W. S. Browne, Chatham; Board of Health, Guernsey; Blackburn Infirmary, Secretary of; Dr. W. Bruce, Strathpeffer; Dr. R. W. Beesley, Bolton; Mr. C. L. Bedford, Birmingham; Surgeon A. Bobardt, R.N., Dartmouth.

C.—Mr. I. Crawford, Tredegar; Sir John A. Cockburn, Lond.; Messrs. E. Cook and Co., Lond.; Messrs. Cassell and Co., Lond.; Cotswold Sanatorium, Cheltenham, Secretary of; Clayton Hospital, Wakefield, Secretary of.

D.—Dr. D. N. Dakhyl, Lond.; Mr. W. L. B. Davies, St. Asaph; Messrs. Davies and Co., Lond.; Dundee Corporation, Clerk of; Dr. D. Robertson Dobie, Crieff; Sir Dyce Duckworth, Lond.; Mr. T. Dixon, Lond.

E.—Messrs. Evans, Sons, Lescher, and Webb, Lond.; Eccles and Patricroft Hospital, Secretary of; E, Birmingham; E. S. H.; Mrs. Edwards, Cambridge; Mr. Arthur Evans, Lond.

F.—Sir Michael Foster, Great Shelford; Dr. A. Mearns Fraser, Portsmouth.

G.—Dr. Gilchrist, La Bourboule; Mr. H. W. Gould, Exeter; Dr. J. W. Greenwood, Hanley.

H.—Dr. Arthur Hall, Sheffield; Mr. W. S. Handley, Shepshed; Mr. A. E. Huband, Birmingham; Messrs. J. Haddon and Co., Lond.; Mr. E. Huxley, Lond.; Dr. C. Holman, Aldeburgh-on-Sea; H. W.

I.—Invernith Lodge Retreat, Colinsburgh, Medical Superintendent of.

J.—J. E. F.

K.—Dr. H. Kenwood, Lond.; Mr. W. Kuhlenthal, Lond.

L.—Dr. E. E. Laslett, Hull; Mr. A. Leckie, Lond.; Leslie's, Ltd., Lond.

M.—Mr. S. A. Marples, Lond.; Messrs. Moore and Co., Lond.; Dr. C. A. Mercier, Lond.; Lieutenant Percival Mackie, I.M.S., Lucknow; Manchester Children's Hospital, Secretary of; Mr. C. T. B. Maisey, Witham; Dr J. McGregor, Bridgend; C. Midgley, Ltd., Manchester; Medical Society of Victoria, Melbourne, Hon. Secretary of; Maltine Manufacturing Co., Lond.; Dr. C. Martin, Angers; Dr. W. L. Muir, Glasgow; Dr. Gordon Muir, Hertford; Dr. E. Mackey, Hove.

N.—Dr. C. R. Niven, Liverpool; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.; Nursing Institute, Acton, Matron of.

O.—Dr. C. Ormerod, Bexhill; Messrs. O'Halloran Bros. and Co., Lond.

P.—Mr. L. Pautauberge, Paris; Messrs. Parke, Davis, and Co., Lond.; Mr. F. W. Perry, Lond.; Mr. Y. J. Pentland, Edinburgh; Messrs. Peacock and Hadley, Lond.; Preston Royal Infirmary, Secretary of.

R.—Royal Alexandra Infirmary, Paisley, Secretary of; Royal Victoria Hospital, Dover, Secretary of; Mr. P. H. Ross, Lond.; Messrs. Robertson and Scott, Edinburgh.

S.—Dr. Ed. Schloesser, Wiesbaden; Mr. S. Stephenson, Prince Town; Southport Infirmary, Secretary of; Mr. J. Sherren, Lond.; Surgical Aid Society, Lond., Secretary of: Messrs. W. F. Stanley and Co., Lond.; S. A. M.; Messrs. Street and Co., Lond.; Messrs. Stevens and Brown, Lond.; Mr. H. Sell, Lond.; Mr. F. J. Scrimgeour, Paris; Scholastic, Clerical, &c., Association, Lond.

T.—Mr. W. Thelwall Thomas, Liverpool.

V.—Vinolia Co., Lond.

W.—Mr. T. J. Wright, Montreux; Messrs H. Wilson and Son, Lond.; Mr. G. R Ward, Lond.; Dr. W. Hale White, Lond.; Messrs. Wright, Layman, and Umney, Lond.; Mr. F. R. Walshe, Lond.

Y.—*Y rkshire Post*, Leeds.

Letters, each with enclosure, are also acknowledged from—

A. Dr. J. Adam, West Malling; A. C.; A. G.; A. C. Y.; A. L; Mr. J. E. Abbott, Cardiff; Apollinaris Co., Lond.; A. D. B.; A. M. W.; A. M. H.

B.—Mr. B. M. Blair, Banwell; Messrs. J. and A. Bray, Hastings; Dr. T. B. Broadway, Dorchester; Mr. D. Brown, Newport, Mon.; Mr. C. R. H. Ball, Hunstanton; Mr. J. Braithwaite, Bishop Auckland; Mr. H. Balme, Bath; Mr. J. Bolderson, Bath; Mr. J. Barker, Lond.; Dr. E. C. Baber, [illegible] Dr. S. K. Basu, Kashimpore; Dr. B. W. Bernard, Warwick; B. M. M., Purley; B. A.

C.—Mr. J. J. Crowley, Cork; Dr. E. J. Cooke, Sheffield; Dr. E. Cameron, Cleethorpes.

D.—Mr. H. Davies, Lond.; Mr. H. Dwyer, Banbury.

E.—Dr. D. R. Evans, Cwmyglo; East Suffolk Hospital, Ipswich, Secretary of; E. R. M.; Dr. C. R. Elgood, Winchester.

F.—Dr. R. S. Frew, Glasgow; Lieutenant R. F. M. Fawcett, R.A.M.C., Halifax, Nova Scotia; Messrs. Fletcher, Fletcher, and Co., Lond.; F. M. B.; Miss J. Forrester, Campsie Glen; Mr. T. Foley, Ardmore.

G.—Dr. J. Gillan, Ryhope; Mr. F. Griffiths, Lond.; G. J. W.; Gowers, Ltd., Maldon; Gateshead Union, Clerk of; Mr. H. W. Gould, Exeter.

H.—Mr. T. A. B. Harris, Raunds; Mr. O. Hall, Stoke; Mr. M. Hooper, Ripley; Mr. J. Heaps, Hove; Mr. S. Hogg, Belfast; Mr. T. M. Hardy, Sheffield; Mr. C. S. Harwood, Staines; Mr. E. M. Healey, Margate; Mr. C. G. Hutchinson, Edgbaston; Dr. A. Holt, Lond.; H. G. D.; H.; Mr. D. S. Henderson, Thurnscoe.

J.—Mr. E. O. Jones, Llangefni; Miss E. Jones, Sarnau; J. P. A.; Dr. J. D. Jenkins, Pentre; Mr. A. R. Jones, Whitby; J. J. L.; Mr. J. Jewson, Lond.; J. E. W.; J. N.; J. H.; J. R. H. O.; Mr. E. O. Jones, Old Colwyn; J. J. M.; J. T. C. C.

K.—Mr. C. H. Knowles, Hull; Mr. W. Kirwan, Oranmore; Messrs. King Bros., St. Leonards-on-Sea.

L.—Dr. F. Laird, Heywood; L. B.; L. H., Lee; Locum, Lee.

M.—Mr. R. Mosse, Berlin; Mr. E. W. Morris, Port Adelaide; Mr. J. D. Mortimer, Lond.; Captain G. Mansfield, Lond.; Dr. J. Michie, Lond.; Mr. W. J. H. MacGilvray, Brynmawr; Mr. W. B. Moore, Stourbridge; Mr. M. Mitchell, Freshford; Mr. J. C. Michell, Lynton; Mr. M. F. J. McDonnell, Ballymore; Middlesbrough Corporation, Accountant of; Medicus, Halesowen; Mr. J. McFadyean, Harrogate.

N.—Dr. E. Norton, Folkestone; Mr. G. Nisbet, Leeds; Messrs. Newbery and Sons, Lond.; Northern Medical Association, Glasgow, Secretary of; N. T. L.

P.—Dr. A. Pryce, St. Asaph; Plymouth Borough Asylum, Blackadon, Clerk of; Mr. R. N. Pentrie, Benbecula; Poplar Hospital, Secretary of.

R.—Mr. C. Robson, Northallerton; Dr. E. F. Robinson, Frensham; Dr. R. Rennie, Billericay; Mr. F. T. Rhodes, Stanstead Abbotts; Mr. H. M. Riley, Leicester; Mr. A. Rose, Nairn; R. G.; Mr. R. W. Roberts, Cwm Avon; Rebman, Ltd., Lond.; Mr. C. E. Riddell, Sheffield; Royal Hospital for Women and Children, Lond., Secretary of.

S.—Dr. R. A. Shaw, Burnley; Miss V. A. Shaw, Prince's Risborough; Sussex County Hospital Brighton, Secretary of; Mr. C. [illegible] Mr. [illegible] Mr. [illegible] Mr. [illegible] Miss S. E. Senior, Hatfield; Mr. J. H. Stewart, Aberdeen; Surgical Supply Association, Manchester, Secretary of; S. J. C. F.; Mr. A. Sandison, Unst.

T.—Mr. J. B. Thomas, Mardy; Mr. J. H. Tannahill, Greenock; Mr. R. Thomas, Stockton Heath; Mr. J. Thin, Edinburgh; T. J.; Mr. W. Thomas, Pontefract; Mr. C. Tilbury-Fox, Ashford; Dr. H. H. Thomson, Bridge of Weir; Mr. A. J. Taylor, Northwich; Mr. J. J. Tate, Bideford; Triple.

V.—Dr. A. Veitch, Castle Cary.

W.—Mr. R. Wardlaw, Greenock; Dr. H. E. Wingfield, Winchester; W. H. P.; W. K.; W. H.; W. S.; Winchester House, Kingston Hill, Medical Superintendent of; Mrs. F. Ward, Lond.; W. C R; Mr. A. F. Wilson, Colchester; W. M.

X.—X. Y. Z., Edinburgh.

EVERY FRIDAY. — **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.			
One Year	£1	12	6
Six Months	0	16	3
Three Months	0	8	2

TO THE COLONIES AND ABROAD.			
One Year	£1	14	8
Six Months	0	17	4
Three Months	0	8	8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0	5	0
Official and General Announcements	Ditto	0	5	0
Trade and Miscellaneous Advertisements	Ditto	0	4	6
	Every additional Line	0	0	6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapts, Asnières Paris.

An Address

ON

THE ARTIFICIAL FEEDING OF INFANTS.

Delivered before the Hampstead Medical Societ ,

BY ROBERT HUTCHISON, M.D., F.R.C.P.,
ASSISTANT PHYSICIAN TO THE LONDON HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

GENTLEMEN,—The subject of this paper—the artificial feeding of infants—may appear to some of you, I am afraid, rather hackneyed. Indeed, there are few subjects, even in medical literature, about which more has been written, but there are few, also, I venture to think, in which so much of what has been written is of so little help in practice. To listen to some exponents of this theme one would be driven to believe that the artificial feeding of a young infant is a matter of such difficulty as almost to surpass the limits of human ingenuity and skill, or that it requires such a combination of profound chemical knowledge with an intimate acquaintance with the physiology of childhood as is hardly to be expected of anyone who is engaged in the ordinary practice of our profession. I am sure you will agree with me that this is a very exaggerated view of the difficulties of the subject. That there are babies the artificial feeding of whom taxes the ingenuity of the most experienced practitioner everyone will admit, but that these form the majority of the cases with which we have to deal everyone, I think, will deny. On the contrary, I am convinced that by attention to a few very simple rules we ought to be able to insure success in by far the larger number of the cases about which we are consulted. What these rules—in my judgment at least—are, I hope to be able to lay before you. I shall, I fear, have nothing very new to tell you, nothing which many of you do not know quite as well as I, and certainly no broad and easy road to successful infant-feeding to point out. I shall be satisfied, however, if I succeed in defining the great [illegible] this matter must depend, and [illegible] chief mistakes into which [illegible] the ground for discussion.

In the first place I think it is important that one should have some definite plan of campaign upon which to proceed when called upon to undertake the artificial feeding of an infant. I lay stress upon this point because I am convinced that the want of such a plan is a frequent cause of failure. One is apt to start off with a particular mixture, perhaps selected on no very definite grounds, and because the infant does not immediately do well on it to change in a week or two to something else, and when that also fails to plunge [illegible] in the vain hope that [illegible] Gentlemen, that way lies disaster. If we are to succeed at all it can only be by proceeding along definite lines, beginning with a mixture selected on rational grounds as suited to the digestive powers of the particular child with whom we have to deal, and if that fails after a proper trial—and the balance is the only arbiter of success—passing on to a mixture which we know to be more easily digested and from that, if need be, to one [illegible] are [illegible] and not to any unsuitability in the food.

To begin, then, at the beginning, everyone will agree that the basis of all our attempts at artificial feeding must be cow's milk. Now the drawback to cow's milk, and this cannot be too often repeated, is the indigestibility of its casein. This is due not only to the high percentage of casein in cow's milk, but also to its chemical form which is different from that of human milk. We can overcome the quantitative difficulty by diluting the milk, but this does not affect the chemical character of the casein, hence it is that no so-called "humanised" milk can ever be really as digestible as that of the child's mother. To what extent, then, are we to dilute the milk? I think it is best to start off in nearly all cases with a dilution of half-and-half. Barley-water has certain advantages as a diluent, but if there is any tendency to diarrhœa or scalding under the napkins lime-water is preferable. To be of any service, however, the lime-water must be used freely—the teaspoonful or two which mothers often add to the bottle is of no use. A mixture of equal quantities of cow's milk and water or other diluent contains almost the right proportions of proteid but is deficient, as compared with human milk, in sugar and fat. This, however, is easily remedied by the addition of one teaspoonful of sugar and one of cream[1] to every four ounces of the mixture. The sugar used should, if possible, be milk sugar. If that is unobtainable white sifted cane sugar may be used; brown sugar, being more fermentable, is to be avoided. The quantity of the mixture to be given at each feed cannot be very exactly laid down, as it varies not only with the age of the infant but with his weight and digestive power. It will fall somewhere between five and ten tablespoonfuls for all but the feeblest infants, but the exact amount may safely be left to the child's own choice. The intervals between feeds also vary, but of course the smaller the amount taken at each feed the shorter must the intervals be. As a rule the child should be fed every two hours for the first six weeks of his life, every two and a half hours for the next six weeks, and every three hours after that until he is weaned. One, or at most two, night feeds will also be required during the first six months. It is important that the infant should be accustomed from the outset to the observance of these intervals, for nothing is more certain to upset the digestion than too frequent or irregular feeding.

The question whether or not the milk should be boiled is one which has been much debated and into the pros and cons of which I cannot enter fully in the short time at my disposal. I would only say that the chief danger of unboiled milk is that it is more apt to produce vomiting and diarrhœa; the risk of tuberculosis is much more remote and has probably been greatly exaggerated. It follows from this that in hot weather at all events the milk should always be boiled, [illegible] minute or two, [illegible] he temperatur[illegible] is kept at it th[illegible] greater is the risk of its producing scurvy.

The sort of bottle to be used is only second in importance to what one puts in it, for I believe I do not exaggerate when I say that more failures in infant-feeding are due to the use of an improper bottle than to any other single cause. The simpler the bottle used the better. The great thing is that it should be easy to clean in every part. The long tube variety you will, of course, reject at once, but I think that the screw-stopper bottles are but little better. The best is the simple boat-bottle with a plain rubber teat which fits on to the neck and which can be easily turned outside in and cleaned. Let me give you one other bit of advice about the teat: be sure that it has a large enough hole to let the milk out. Attention to this point is by no means superfluous. I have known many failures from neglect of it. Not long ago an infant was sent to me by a practitioner because weight was not being gained. On going into the history I found that the child had been fed with great care and apparently on the most approved mixtures and I thought I should have but little to suggest. On examining the teat, however, I found that the aperture in it was so small that the milk failed to drop when the bottle was inverted. After getting a new teat with a larger hole all went well. Again recently I saw amongst my out-patients at Great Ormond-street a baby, aged three months, who was being fed on the bottle. The child had no digestive disturbance but was losing weight at the rate of an ounce a week. Here, again, I found that the aperture in the teat was almost impervious and after it had been enlarged the weekly loss of weight was changed into a gain of six ounces. I mention these cases as typical of many which I have seen in which failure was due to a purely mechanical difficulty in sucking which is very apt to be overlooked. On the other hand, it is equally important that the aperture in the teat should not be too large, for in that case the infant is apt to gulp down the meal too quickly and to suffer in consequence from vomiting and colic. A suitable size of aperture is one which permits the milk to escape when the bottle is inverted at the rate of about one drop per second.

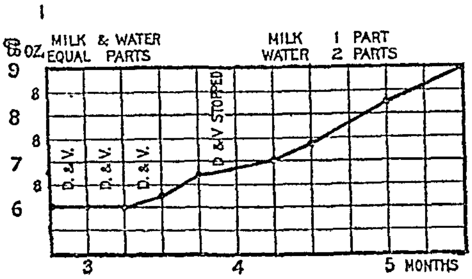
If the above mixture suits the child will gain five or six ounces in weight every week and there will be an absence of digestive disturbance such as colic or vomiting. It must not be supposed, however, that the existence of digestive disturbance by itself is a sufficient indication for changing the method of feeding. This is particularly true of vomiting. Many little babies have a trick, if one may so call it, of vomiting which does not affect their general progress. The fact is that they seem to swallow more food than they really require and to reject the excess. The balance is alone, therefore, the ultimate criterion of success or failure and I am firmly convinced that one cannot have any real satisfaction in the artificial feeding of babies unless one has each patient weighed once a week. It may be objected to this statement that gain in weight may be due merely to the laying on of superfluous fat and is not necessarily an indication of a healthy state of nutrition. To some extent this is true, but such unhealthy fatness is always accompanied by flabbiness and more or less of anæmia. So long as the flesh is firm, the skin "marbled," and the conjunctivæ and lips are of a good colour the rise in weight cannot deceive us.

---

[1] Assuming that it contains the proportion of fat met with in ordinary London cream—i.e., 40 per cent.

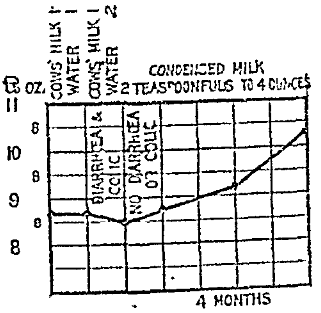
Let us now take a case in which, although the mixture is prepared as above and there is no fault in the bottle, the child does not gain in weight. If there is no accompanying sign of indigestion this may be due simply to the mixture being too weak. This, however, is not likely to be the case unless the child is at least four months old or unless his stomach capacity is abnormally small. In such an event an increase in the proportion of milk in the mixture will set matters right. Far more commonly the loss in weight is accompanied by signs of indigestion, especially by colic. Should this happen, and especially if the stools contain undigested curds, one must give a weaker mixture. It sounds paradoxical, but it is true that a child may waste from getting too much—i.e., too strong food. The accompanying chart is an instance of such an occurrence (Chart I). It represents the course of the weight in a child three months old who was brought to hospital for "wasting" and indigestion. The child was put first on a mixture of equal parts of milk and water, but this was too strong for his digestive powers and diarrhœa and vomiting continued whilst the weight remained stationary. On changing to a more dilute mixture, however (one of milk to two of water), the digestive disturbance disappeared and the weight rose rapidly.

CHART I.



Sometimes, however, one finds that even though the milk is given as dilute as 1 in 3 griping still results. Now it is not advisable, I think, to dilute the milk more than this unless in the case of very young infants. What, then, is to be done in such a case? I believe that the best plan is to have recourse to a more digestible form of food and that one finds in condensed milk. Why it is that the casein of condensed milk is more easily digested than that of ordinary cow's milk I do not know, but I think there can be no doubt that it is so. It may be that the casein undergoes some physical alteration in the process of condensation which makes it more easily dealt with by the stomach. I am aware that there are many people who discountenance the use of condensed milk in infant-feeding in any circumstances, but I can only say that in my hands it has often yielded the most satisfactory results. In order to insure success with it, however, and to obviate its undoubted dangers two conditions must be observed: (1) the deficiency of fat must be supplemented by some other means; and (2) its use must not be continued too long. The former indication can be met by the addition of a teaspoonful of cream to each bottle or if that is unobtainable by the administration of cod-liver oil. The second requirement is fulfilled by discontinuing the use of the milk, save in exceptional cases, by the sixth month at latest. If these precautions are neglected one runs a great risk of producing rickets or even scurvy. We should select a condensed milk which contains all the original fat, Nestlé's being quite suitable. It should be given, to start with at least, in the proportion of one teaspoonful to six tablespoonfuls of water (not barley-water) and with the addition of cream if possible. This quantity should be given at intervals of not more than two and a half hours. I know quite well that such a mixture seems chemically insufficient, but I can only say that in a very large number of cases I have seen the normal weekly gain in weight take place under its use. The explanation of such an apparent paradox may really lie in the very small amount of proteid required by young and feeble infants. It should never be forgotten that human milk does not contain more than $1\frac{1}{2}$ per cent. of proteid and that it is this ingredient which in all our attempts at artificial feeding we are most apt to supply in amounts which exceed the digestive power of the child. The weight-curve of a case in which a successful result was obtained with condensed milk after ordinary milk had failed is shown in Chart II.

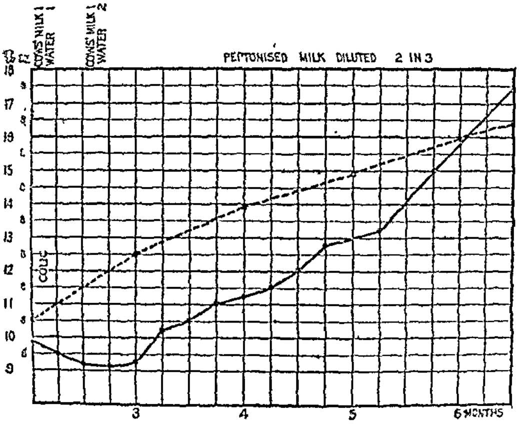
CHART II.



If, after a fair trial of condensed milk the weight still does not go up one must try peptonised milk, the easiest way of preparing which is by means of Fairchild's peptogenic powders. Often vomiting and colic will cease under the use of peptonised milk when all other means have failed and coincidently the weight rises. I do not think one need be afraid of continuing the use of peptonised milk for months at a time if necessary. I have often been obliged to do this in cases in which a return to ordinary milk was immediately followed by indigestion and have always found that one was able ultimately to give it up when the digestive power became stronger, as it always does long before the end of the first year. It is always well, however, to discontinue the use of peptonised milk gradually. One can begin for instance by peptonising for half an hour (longer than that I never recommend), then shorten the process to 20 minutes, then to ten minutes, and after that pass to unpeptonised milk. A good example of the benefits derived from feeding with peptonised milk is shown in Chart III. In this case a mixture of equal parts of milk and water was tried but with the result of producing colic and a drop in weight. It was thought that this might be due to the mixture being too strong for the child's digestive powers and accordingly another part of water was added. This had the effect of abolishing the colic but the weight still continued to go down. The child was then put on peptonised milk and immediately all went well and the weight ended by surpassing that of an average child of the same age.

I regard diluted cow's milk, condensed milk, and peptonised milk as the positive, comparative, and superlative of digestibility respectively and select the method to be used according to the digestive power of the particular child with whom one has to deal. Let us now assume that even peptonised milk, the highest in the scale of digestibility, has failed us and that the child obstinately refuses to gain weight. In such a case I always try the effect of grey powder before proceeding any further. How grey powder acts in such a case, whether it is locally by improving digestion and absorption and checking the growth of bacteria or more remotely by modifying in some way the process of assimilation in the liver or elsewhere, I do not know, but there can be no doubt that in many cases it seems positively to fatten the child. Chart IV. represents the weight-curve of such a case. It is that of a wasting child, three months of age, whose weight was rising very slowly if at all on a mixture of equal parts of milk and barley-water.

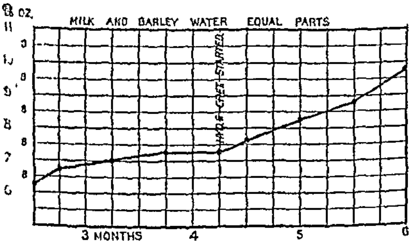
CHART III.



The dotted line represents the normal weight curve, the thick line the weight curve of the child under observation.

No sooner, however, was half a grain of grey powder given three times a day than the weight at once began to rise. There was no reason to suppose that this child was the subject of congenital syphilis. I do not think that one need be afraid of doing any harm with grey powder, notwithstanding the warning of Charles West, for it is rarely necessary to prolong its administration beyond a few weeks Certainly I have never seen a case in which it appeared to produce the least degree of cachexia. Half a grain two or three times a day is a sufficient dose and in some cases the addition of a few grains of bicarbonate of soda seems to aid its action.

CHART IV.



If this resource also fails to effect an improvement one may conclude that he has to deal with a very difficult case. It is this residuum of cases which is apt to be the despair of the medical man. I believe myself that it is impossible to rear some of these by any artificial means whatever and that the only hope for the child lies in procuring a wet-nurse, failing which the wasting persists and ends in death. These are the cases of true marasmus. In others, again, it appears to be the casein of the cow's milk which is the source of difficulty owing to the inability of the child to digest it in any form. In such a case and, in the absence of a wet-nurse, in the first group also, we must eliminate casein from the diet. This can only be done by taking whey as the basis of the mixture. Now whey by itself is an insufficient food. It is too poor both in proteid and fat. These deficiences can be made good by the addition of cream in the proportion of one to six or eight of whey, whilst the proteid is supplemented by the use of white of egg or raw meat juice By the skilful manipulation of these ingredients a suitable diet may perhaps be found. In a few cases I have succeeded when everything else has failed by giving one of the predigested infant foods made up with whey. In spite, however, of all one can do I believe that failure is inevitable in many cases of this sort. The patients die and one can find no reason for failure on examination of the organs after death. I shall say nothing of the use of patent foods, as complete substitutes for milk, because, as a matter of fact, I rarely employ them. If you cannot rear an infant by one or other of the methods described above I do not believe one can rear him by any artificial means whatever. Finally, I would say [illegible] cases in which [illegible] the child is out [illegible] gesting milk and is developed at an unusually early age. There seems to be nothing in which the digestion of infants varies so much as in this capacity of dealing with starch. In spite of the statements in text-books that starch cannot be converted until teething has commenced I think that everyone here must have met instances in which it could be digested and made use of at quite an early age. In such cases I have often had the most gratifying results by adding to the diet some starchy food, such as a rusk or two or some pounded biscuit or baked flour, sometimes even as early as the fifth month. I believe that this experiment is always worth trying in a difficult case, for if it succeeds one can often carry the child on until a tooth is cut, after which the digestive power even for milk seems often to [illegible]

[illegible] ate briefly the [illegible] ore the society. [illegible] of infants is t[illegible] to avoid haphazard procedures. 2. Diluted cow's milk, condensed milk, and peptonised milk may be regarded as the positive, comparative, and superlative of digestibility respectively and should be tried in that order until the digestive power of the child is suited, due regard being paid to the details of administration above laid down. 3. Periodic weighing of the child is the only test of the success or failure of the food selected. 4. In cases in which even peptonised milk fails to give good results great benefit often follows the administration of grey powder even in cases in which there is no reason to suspect a syphilitic taint. 5. In spite of all care in the use of the above methods there remains a residuum of cases in which progressive wasting persists. Many of these seem to be babies who are unable to digest the casein of cow's milk in any form. 6. In such a case one should try to procure a wet-nurse for the child, and failing that one must eliminate casein from the diet by making whey the basis of the feeding mixture. 7. The use of a patent food as the sole article of diet for a baby is rarely if ever necessary so long as c[illegible] fresh or condensed. 8 If a [illegible] cow's milk it is often worth [illegible] a little starchy food to the diet even at an early age, for inability to digest milk appears to be sometimes accompanied by an unusual capacity for the conversion of starch.

GREAT EASTERN RAILWAY. — ACCELERATED SERVICE TO DRESDEN AND VIENNA.—From Oct. 1st the service to Dresden and Vienna by the Harwich-Hook of Holland route will be greatly accelerated. Passengers leaving London, Liverpool street Station, at 8.30 P.M., will be due to arrive at Dresden at 10 4 P.M. on the next day, instead of 12 55 P.M.; and at Vienna, *viâ* Dresden, at 7.35 A.M. on the second day after departure, instead of 2.40 P.M.

BURIAL AND FUNERAL REFORM.—Speaking at the parish cross at Westow, near York, on Sept. 13th, the Rev. F. Lawrence, honorary secretary of the Burial Reform Association, said that there was need of reform in the matter of funerals among both rich and poor. The poor were extravagant in their expenditure when they buried their dead, involving them in difficulties of long duration, while the rich often encouraged the false notion that they honoured their departed friends by the false pomp of costly funerals. The custom of burying dead bodies in strong coffins in vaults was to be deprecated because the sooner the mortal body returned to the earth the better. Burial should be in a perishable coffin in light soil where practicable.

A Clinical Lecture

ON

A CASE OF ABSCESS OF THE TEMPORO-SPHENOIDAL LOBE PRESENTING SYMPTOMS OF "AMNESIC APHASIA"; OPERATION; RECOVERY.

Delivered at the Leeds General Infirmary,

By R. LAWFORD KNAGGS, M.A., M.C. Cantab., F.R.C.S. Eng.,

SURGEON TO THE LEEDS GENERAL INFIRMARY; LATE OPHTHALMIC SURGEON TO THE LEEDS PUBLIC DISPENSARY.

Gentlemen,—The patient, a young officer, aged 26 years, had had a slight otorrhœa from childhood. Whilst serving with his regiment in South Africa a year ago his horse fell with him and he bruised and cut the left side of his face and suffered from a slight degree of concussion, but though he was laid up in an hotel for a day or two he did not go into hospital. Shortly before his illness began he returned to duty from leave and thought he took cold at a hockey match in which he played, because he suffered from headache on the way home. On Feb. 13th, 1903, two or three days later, he complained of general pains and there was some pyrexia. On the 15th he had a general convulsive seizure of some kind and for several days he had much pain in the head. On the 19th he had a temperature of 102° F. and intense pain over the forehead and vertex and he also vomited. Then his condition improved, but became worse on the 22nd and some foul pus was noticed to come away from the ear after it had been syringed. To this another improvment in his symptoms was attributed. On the 25th the patient was seen in consultation with Lieutenant-Colonel Clapp, R.A.M.C., and Mr. G. W. Blomfield of Pontefract. He was in bed but got up to be examined. The pulse was 60 and the temperature was 98°. His demeanour was apathetic but he expressed his willingness to assist in any way he could. There was a distinct pause before he began to answer questions put to him and if he ventured upon a descriptive sentence he would stop short here and there and repeat the last word he had uttered several times. In this way he would wait until a word he wanted came to him and then he would continue until another word failed him and led to the same manœuvre. He complained of great pain over the left anterior half of the head and at the vertex, where a blister had produced a boggy patch in the scalp. There was hyperæsthesia over the left parietal region which was very noticeable the next day when he was being prepared for the operation, and slight pressure in front of the auditory meatus at once elicited signs of pain. This tenderness on pressure in front of the ear and over the parietal region on the left side was in striking contrast to the absence of tenderness over the mastoid process. No sign or even acknowledgment of pain could be obtained either on tapping or exerting firm pressure over the mastoid cells. A watch could be heard at a distance of three inches and the tuning-fork test showed that there was no interference with the auditory nerve. The membrana tympani was obscured by pus. There was early optic neuritis in the left eye and the right disc also was thought to be affected, though the signs were not very definite. The visual fields were of normal size. There were no loss of the sense of smell on either side, no paralysis, no unsteadiness of gait, and no ankle clonus, but the knee-jerks were exaggerated. The patient had had very little sleep on account of the headache, but this was not continuously intense and during the intermissions he would get a few hours' rest.

A diagnosis of cerebral abscess secondary to ear disease was made and after carefully reviewing the symptoms we were convinced that the mischief was to be sought for in the temporo-sphenoidal lobe. It was decided to open up the mastoid antrum and middle ear as soon as possible and then to be guided by circumstances. The patient, therefore, was moved on the next day to a nursing home in Leeds and on Feb. 27th, with the assistance of Mr. Michael A. Teale, Dr. C. H. Moorhouse, and Mr. J. Ratcliffe, the complete mastoid or Stacke's operation was performed. As soon as the antrum was opened pus escaped. The middle ear and the antrum were then laid completely open into one hollow excavation and in order to give plenty of room for inspection and examination the bone was freely removed at the upper part of the hollow. On examining with a probe an aperture was now found in the roof of the antrum and through this the probe passed for quite two inches upwards, slightly backwards, and with a slight trend inwards. It met with no resistance and n attempt was made to measure the full extent of the cavit it had entered. As soon as it entered the cranium greenish yellow pus escaped. The probe was left in the apertur and the base of the skull external to it was cut away unti the dura mater of the middle fossa was exposed as far bac as the orifice in which the probe lay. The dura mater di not pulsate and it did not bulge upwards noticeably into th gap. A pair of sinus forceps was now introduced alongsid the probe and the track was dilated. Pus came away freel but slowly. It filled the excavation in the petrous bone ove and over again as it continued to flow and to be moppe away. The abscess was several minutes emptying itself an it was estimated that from three to five ounces of matte must have escaped. Pulsation returned to the dura mater an a small drainage-tube was introduced for two inches int the abscess cavity and fixed in the post-auricular incisio No further disease was found in the tympanum. Th ear was fastened in position by a few sutures and th hollow in the bone was packed with gauze through th enlarged meatus and from the incision. At the close the operation the pulse had risen from 60 to 72. Subsequen progress was uneventful. The drainage-tube was not take out and replaced till the tenth day, when the wound ha become lined with granulations. On its withdrawal about teaspoonful of foul pus escaped and from that time onwar no more pus came away. The tube was gradually shortene and finally removed about the end of the third week. Hea ache never returned after the operation. His difficulty wi words speedily disappeared, though for the first day or tw he was conscious that it existed and caused him to make a occasional stupid mistake. He slept heavily for several da but in his waking intervals he was bright and showed no of his previous apathy. The optic neuritis remaine stationary, or if anything became a little worse (certain a hæmorrhage made its appearance in the third week), b after the tube was finally removed it rapidly subsided an had disappeared in another week.

When a person who has suffered from a long-standin otorrhœa develops a prolonged and intense headache up the same side as the affected ear and the optic discs a found at the same time to be inflamed there is not much roo for doubt that some intracranial complication has set i This conclusion is only made more certain when there is history, as in this case, of some general epileptiform seizu and of vomiting. But the difficulty comes in when a di gnosis has to be made as to the nature of the complicatio and the exact seat of the mischief. The life of the patie will in large measure depend upon the appreciation of fac that can easily be overlooked and upon an accurate inte pretation of their meaning. Exploratory operations upon th brain are not like similar operations upon the abdomen. the latter the surgeon is likely to relieve his patient, thoug he may be completely at fault in his diagnosis, but in th case of the brain, if an exploratory operation in one directio does not relieve it may lead to a somewhat speculative i vestigation in another and the second proceeding may pro as futile as the first. Such a result is apt to be as disastro to the patient as it is disappointing to the surgeon.

The chief intracranial complications that are met wi in middle-ear disease are meningitis, lateral sinus thro bosis, extradural abscess, and cerebral or cerebellar absces Now, in the present instance it was not difficult to rule o septic meningitis, because the illness had been slow a insidious in its onset, the temperature was subnormal instea of being considerably raised, there were no paralyses of th nerves at the base of the brain, and the symptoms ha existed much too long for them to be mistaken for tho produced by that fatal condition. Lateral sinus thrombos also was speedily eliminated, for there had been no rigo and you will see from what I am going to say that th posterior fossa of the skull was apparently free from diseas But it was not so easy to distinguish between extradur and cerebral or cerebellar abscess. Let me here recall tw points in the physical examination of the case. The hearin power, as demonstrated by the tuning fork when placed upon the bone, was not in any way deteriorated, and there was no tenderness upon tapping the bone over the mastoid or upon firm pressure. The first fact showed that the labyrinth was not involved in the disease and the second that suppuration had not extended to the vertical mastoid cells. Now, it is from these two parts of the temporal bone that extension of inflammation usually takes place to the cerebellum and as the facts I have mentioned were associated with an absence of such symptoms as vertigo, staggering gait, and pain at the back of the head and the nape of the neck, which are frequently found when there is cerebellar disease, we felt on safe ground in concluding that the cerebellum was not at fault.

Next let me draw attention to the headache from which the patient suffered. This was situated on the same side as the ear trouble and over the anterior half of the cranium. It was not present at all over the right side of the head or over the occiput. It was particularly noticeable over the left parietal region and the slightest pressure in front of the auditory meatus over the trunk of the auriculo-temporal nerve at once made made him wince. When the head was shaved the night before the operation the left parietal and temporal regions were found so hyperæsthetic that it was almost impossible to proceed, but there was no difficulty over the area supplied by the great and small occipital nerves It is perhaps unnecessary to mention that the Gasserian ganglion lies upon a groove near the apex of the petrous bone not far away from the roof of the middle ear and antrum and in the middle fossa of the skull in which the temporo-sphenoidal lobe is lodged. It is stated in some anatomical text-books[1] that filaments are given off from the ganglion to the dura mater and the headache and hyperæsthesia were no doubt a reflected nerve condition dependent upon irritation of these filaments either by the pressure of the abscess or by the involvement of the adjacent dura mater in the inflammation. It was of importance because it pointed to the middle fossa of the skull, but it still left it an open question whether the abscess was outside the dura mater or in the brain. It was quite conceivable that it might be present with either, for the dura mater might be involved in a cerebral abscess as it certainly would be in an extra dural one. The inference to be drawn from the escape of foul pus from the ear *after syringing* was equally indeterminate. There was one thing, however, that pointed strongly in the direction of brain abscess—viz., the difficulty the patient had with his speech. This suggested the implication in some way or other—no doubt in this instance by the pressure of an abscess—of a portion of the brain at a little distance from the ear, and it was this fact which, as soon as it was appreciated, led us to feel sure that we had to deal with an abscess in the temporo-sphenoidal lobe. The slow pulse, the subnormal temperature, and the apathetic demeanour were other valuable indications which helped to strengthen that conclusion.

Perhaps the most interesting feature of the case was this aphasia which was so useful in deciding the diagnosis. It did not readily attract attention, for the patient did not trouble to make many statements but contented himself with short and simple answers to the questions put to him. I have already described how when he did venture upon a sentence he would stop short at some word and would repeat it several times whilst he seemed to be trying to find the right word to come next. This would occur two or three times in the sentence. To me it appeared that he had forgotten the word and that his memory for words was at fault but when he became convalescent he explained exactly what the difficulty was that he had felt. He knew the word he wanted to use but would suddenly recognise that he was going to say a different one. The word he was on the point of uttering always had a certain likeness in sound to the one he meant to use but its meaning was very different. Sometimes the word he employed would be a "mixed up" word but still possessing a certain resemblance to the one intended. When he realised that he was going to say the wrong word he would wait and try to get the right one and after an interval it would come. The difficulty persisted for a short time after the operation and he gave me the following example. One day he was asking his nurse some question about an egg, and speaking quickly he called it "an echo." He at once recognised the error and asked her if she had noticed what a fool he had made of himself. For a long time he had a difficulty with certain words—usually long ones—such as "Pontefract" and "podophyllin." His method of trying to work up to the latter, which referred to some pills he wanted to indicate, was ingenious. He would think of "pod" and he could say it, then he would think of "dolphin" and he could say that, but it was quite beyond his powers to say "podophyllin." Yet it was evident that he knew the word but experienced a difficulty in enunciating it. This clear description by the patient suggests that though the ideas of the words which he wanted to use were clear enough they were apt to stray along wrong channels (possibly because the right ones were incommoded) to the centre for motor speech and consequently to be turned out in an unexpected and oftentimes an irrelevant form—the idea of one word stimulating the motor mechanism of another. It shows, too, that though the abscess from its size and situation must have invaded the immediate vicinity of the centre for auditory speech—viz., the posterior half of the first temporo-sphenoidal convolution—yet that centre, where the conception of words the knowledge of which has been acquired by hearing probably originates, was not really affected by it. And, further, it gives point to a statement by Gowers[2] that "verbal amnesia," or "amnesic aphasia," has been ascribed to interruption of the conducting paths between the auditory and motor centres of speech.[3]

One other symptom of more than ordinary interest was present in this case. The pus from the abscess in the brain leaked away in small quantities through the antrum and middle ear. This condition has been named "otorrhœa cerebralis." It is not often that an abscess of the brain finds relief in this way, but in those rare instances in which it does caries of the roof of the tympanum or of the antrum has in the first place led to the formation of a small aperture in the bone and it is through such an erosion that the pus finds its way out. The force of gravity has been invoked to explain why a temporo-sphenoidal abscess may discharge itself in this way, but though the weight of the abscess no doubt has its influence there is probably a better explanation. An aperture in the bony casement of the brain in such a case represents a point where the surface pressure is less than elsewhere. Pus always tends to find out the path of least resistance and consequently it might be expected that the abscess would be attracted to the erosion.

A large majority of abscesses in the brain occur in association with ear disease, but it is by no means easy to explain in any particular instance the exact method of their production. Of course the suppurative process may reach the brain directly by involving in turn each intervening structure, but in our case this was not so. Had the patient died in an early stage of the disease the abscess would have been found separated from the aural mischief by an intervening area of apparently healthy brain. How does the infection take place in such a case? I think we are justified in assuming that in the present instance, an erosion having formed in the roof of the antrum, the dura mater covering it became involved in the inflammation. Now it is probable that there lay in immediate relation with this infiltrated patch of the dura mater one of the small branches of the posterior cerebral artery which ramifies in the pia mater on the under surface of the temporo-sphenoidal lobe. By means of this artery infection could have been conveyed to the brain in one of two ways. Either its perivascular connective-tissue sheath, becoming infected from direct contact with the inflamed dura mater, could furnish a path for the micro-organisms to the interior of the brain, or, the vessel itself being involved, a septic thrombus might form in its interior and break down and lead to infective emboli in the terminations of the vessel in the white substance and so start a process from which an abscess would result. In some cases infection may take place through the veins. The superior petrosal sinus receives veins from the tympanic cavity and the roof of the tympanum on the one hand and from the temporo-sphenoidal lobe on the other. A thrombus originating in one of the former might reach and occlude the sinus and extend from it into some of the cerebral veins, and the organisms could then find their way to the brain along the clot. But here we may dismiss this mode of infection, for had a septic thrombus been present in the sinus septic emboli could hardly fail to have been distributed to other parts of the body and symptoms of pyæmia would have been present. These are not the only paths by which infection may reach the brain, but in cases like the one I have narrated they are the most important.[4]

---

[1] Morris; Quain, eighth edition, vol. I., p. 555.

[2] Gowers: Diseases of the Nervous System, vol. II., p 116.

[3] [illegible] patient wrote subsequently to the convulsive [illegible] one or two trivial mistakes [illegible] tired, but his difficulty in [illegible] sion to the names of persons [illegible] riod was a source of amusement [illegible] course, did not realise its meaning.

It is well known that a certain class of brain abscess may exist without giving signs of its presence for long periods. This was probably so here. The symptoms which presented themselves in the fortnight before the operation possibly marked the culmination of a process which may have been set going by the injury producing concussion nearly a year before. The abscess was a chronic one or, as it is usually designated, "encapsuled," and it presented features very different to those of the acute variety. In acute abscess the purulent focus is surrounded by an area of œdematous and inflamed brain tissue in which the degree of inflammation gradually diminishes from the centre to the periphery. In such an abscess the pus is contained by softened and disintegrating brain. The chronic abscess, on the other hand, is surrounded by a capsule of inflammatory tissue which is undergoing, or has undergone, organisation. This capsule walls off the inclosed matter from the cerebral substance which remains in a more or less healthy condition around it.

The acuteness or the chronicity of an abscess depends to some extent upon the virulence of the infection and largely upon the ability of the living tissue to throw out a barrier capable of limiting the spread of the inflammation, whilst the widely different clinical aspects of the two forms are due to the conditions met with in the brain tissue inclosing them. The diffluent and inflamed area surrounding an acute abscess may vary considerably in extent and may even involve a very considerable portion of a hemisphere. Its tendency is to swell but its expansion is prevented by the incasing bone. The result is an increase of intracranial pressure which produces pain of an agonising character. If a portion of the skull is removed the dura mater bulges upwards into the aperture and if this is incised a protrusion of the brain occurs. And especially is this so if the gap in the dura mater is situated over a portion of the surface of the brain which has already begun to experience the softening effects of the centrifugal inflammation. Such softened brain easily moulds itself and the hernia cerebri often assumes a mushroom shape. The more extensive the area of brain substance that is inflamed the greater the intracranial pressure and the larger the hernia that would be likely to result. If in such a brain—ready as soon as opportunity offers to protrude—the abscess can be opened the pus may be forced out in a spurt to a considerable distance by the surrounding pressure upon the abscess cavity. Sometimes this pressure may force the matter to the surface without an incision, when by the removal of bone and incision of the dura mater a path of least resistance has been made. I have seen this occur and it is a very striking thing to watch.

How different is the behaviour of the encapsuled abscess. It occupies a space the brain substance corresponding to which has been completely destroyed. It is surrounded by normal brain tissue with little or no tendency to expand. The intracranial pressure is in many instances, therefore, not raised. The consequence is that it may be latent and unsuspected for weeks and months. When at last it leads to operation the bulging of the exposed dura mater is comparatively slight and when the abscess is opened instead of the pus spurting out it slowly oozes away. Finally, there is little or no tendency to the formation of cerebral hernia. It is imperative that such an abscess should be drained to give its cavity time to contract. Drainage is not absolutely necessary in some acute abscesses, for the cavity is entirely obliterated by the pressure and any attempt to drain would mean that the tube would lie imbedded in a mass of soft pulpy brain and keep up a certain amount of irritation. Of course, every abscess of the brain will not be in all respects like one of the two forms which I have sketched. They are to be regarded as types at opposite ends of the scale. But there are intermediate conditions in which certain of the features of the two types may become more or less blended.

---

[4] McEwen; Pyogenic Diseases of the Brain and Spinal Cord.

A CASE OF

ANEURYSM OF THE ABDOMINAL AORTA TREATED BY THE INTRODUCTION OF SILVER WIRE,

WITH A DESCRIPTION OF INSTRUMENTS INVENTED AND CONSTRUCTED BY MR. G. H. COLT TO FACILITATE THE INTRODUCTION OF WIRE INTO ANEURYSMS.

BY D'ARCY POWER, M.A., M.B. OXON., F.R.C.S. ENG.,

AND

G. H. COLT, B.A.

THE patient, a farrier, aged 29 years, was accustomed to perform heavy work in a stooping position. He had acquired syphilis at the age of 17 years, but had only been treated with mercury for a short time. Three and a half years ago he first noticed something beating in the right side of his abdomen and since that time he had been continuously under treatment in some hospital or infirmary. On five occasions he received injections of gelatin in the gluteal region, but they had not produced any marked change in the swelling, which increased steadily in size. On examination he was found to be a sallow, unhealthy, and anæmic man, addicted to morphia. His heart and lungs were reported to be normal. His pulse was regular, but poor in volume, and the radial arteries felt thickened. There was a throbbing area of skin in the epigastric and upper part of the umbilical region, which, at its highest point, seemed to be raised about three-quarters of an inch above the level of the surrounding skin. The throbbing was expansile in character and there was a well-marked bruit, which persisted when the patient was examined in the knee-elbow position. The pulse in the femoral arteries was equal and synchronous. The swelling was diagnosed as an abdominal aneurysm and more probably an aneurysm of the cœliac axis or of one of the branches than of the abdominal aorta. The sac of the aneurysm was very thin at one or two points and as the life of the patient seemed to be in danger it was decided to expose the sac and either ligature the artery from which the aneurysm arose or, if this were impracticable, fill the sac with silver wire. An incision was made down to the most prominent part of the swelling until an exposure of the sac showed that it would be hopeless to ligature the artery, as the sac was densely adherent to the surrounding structures. No coils of intestine lay between the parietal and visceral layers of the peritoneum in front of the aneurysm. It was determined, therefore, to wire the sac, and 80 inches of silver wire, with a clotting surface of 3·7 square inches, were rapidly introduced into the aneurysm by means of the new instrument (described later as instrument No. 1). The needle was then withdrawn, the wire was divided, its end was bent up and it was pushed into the sac, the hole being easily closed with a few Lembert's sutures. The operation lasted 30 minutes from the time the patient was placed upon the operating table until he was removed. The actual introduction of the wire only took two and a half minutes, but even this time might be shortened on a future occasion. The pulse during the operation was 88 and the respirations were 20. The operation was performed at 4 P.M. and the patient had a quiet night after a hypodermic injection of morphia at 10.30 P.M. On the following morning (Jan. 21st, 1903) his abdomen was soft, his respirations were 18, and his pulse-rate was 136. He complained of abdominal pain over the aneurysm and of pain in his back. A second hypodermic injection of morphia was given at 10 A.M. and the patient then slept quietly for several hours. At 2 P.M. the pulse was 136–144 and at 7 P.M. it was 146. He was ordered two drachms of milk-and-water every hour and he was kept under the influence of morphia. There was no evidence of gangrene nor did he complain of any numbness or tingling in the legs. At 9 A.M. on the 22nd the patient was complaining of pain in his back; his pulse was 160 and his temperature was 101° F. The wound was dressed; it looked healthy. The abdomen was tender, resonant, and showed impaired movement. The right side of the aneurysmal swelling was hard and did not pulsate, but there was distinct pulsation on the left side. The patient was now taking an ounce of milk-and-water every hour and he was reported to have vomited twice, bringing up a small quantity of "coffee-ground" substance the first time and half an ounce of bile-stained fluid on the second occasion. He still complained of pain in his back; his pulse increased to 170 and he gradually sank, dying at 6.20 P.M. on the 22nd, about 50 hours after the operation.

The post-mortem examination showed that an aneurysm of the size and shape of a large orange projected forwards from the abdominal aorta between the layers of the transverse mesocolon. The sac was somewhat compressed laterally and was developed from the aorta itself, the dilated portion of the vessel being about three inches in length and extending downwards from just below the diaphragm. The great omentum immediately below the greater curvature of the stomach had been torn through at the time of the operation to reach the anterior surface of the sac. On cutting across the aorta just above the diaphragm a loop of silver wire seven inches long was found projecting into the arch of the aorta, but the rest of the wire was irregularly coiled within the sac of the aneurysm. All the other abdominal organs were healthy; the lungs were normal and the heart was free from disease except that the pericardium was adherent in places. The aneurysm and aorta were hardened in formalin before a section was made.

Hitherto, as far as we can ascertain, in treating aneurysm by the introduction of wire the surgeon has been content to puncture the aneurysm with a fine trocar and cannula; he has then withdrawn the trocar and forced the wire through the cannula, from which blood was often flowing freely. The amount of wire introduced in this manner has varied with the time at which the occurrence of kinking arrested its further progress. For this reason it has sometimes only been possible to introduce a few inches when it was intended to have put in several feet. The introduction of wire through a cannula is open to the further objection that a great deal of handling is necessary both by the sur- [illegible] it is difficult to insure that [illegible] as sterile as that first used.

[illegible] of an instrument designed to overcome these difficulties are as follows:—1. The instrument must be self-contained—that is to say, it must carry the wire on a reel and have some form of fine cannula through which the wire is to pass. 2. It must remove the wire from the reel and force it through the cannula, yet without permitting it to kink. 3. It must not allow the wire to damage the sac or the surrounding tissues, although some force has to be used in the introduction of the wire; in other words, the wire must be made to coil up within the sac. 4. It must be simple in construction and so easy to work that no instrumental complication may occur during the actual operation and it must necessarily be capable of withstanding prolonged boiling. 5. It should, if possible, "snag"—that is to say, knot or roughen the wire, as coagulation is likely to be promoted by such roughening.

Instrument 1.—After a few preliminary experiments an instrument was constructed to meet these requirements. The instrument works on a principle which may be enunciated in the following terms. If what is known to the mechanical engineer as a milling tool be made to revolve at a distance less than the diameter of the wire employed from the inner surface of the dorsal wall of a hollow needle, the ventral wall of which has been cut away, the milling tool will grip the wire between itself and the needle and will wind it off a reel and drive it through the needle with a force only limited by the force at the disposal of the operator. It will at the same time "snag" or mill the wire (Instrument 1, Fig. 1). To carry out this principle a quarter-curved tubular needle was embedded for about two inches of its length in the substance of a brass carrier. A semicircular incision was then made down to it through the brass, so that the lumen of the needle was exposed. A milling tool was introduced at this spot to compress the wire with a steady grip as it passed through the needle, the pressure being made between the milling tool and the dorsal wall of the needle, and care was taken that no space should exist in which the wire could kink. The mounting of the needle was then bolted to the mounting which carried the milling tool, which was so geared up as to give the operator room to use the instrument without getting his hands too near the wound. A second hole was made into the tubular needle distal to the milling tool and along this a stilette is passed to block the point of the needle whilst it is being pushed into the sac of the aneurysm. The instrument is further provided with a handle by which to hold it and with a second handle which, when turned, causes the milling tool to revolve. The method of use is as follows. The aneurysm is punctured on the right-hand side, the stilette is withdrawn, and blood flowing through the needle shows that the point is lying in the sac. The handle to which the milling tool is geared up is then turned in the direction of the arrow engraved upon it and the wire is wound steadily and rapidly through the quarter-curved needle. The wire emerges into the aneurysm in a coil measuring one and five eighths inches in diameter, the coil increasing spirally from right to left so as to produce a loosely formed spring. The wire is milled as it passes under the milling tool on the axial surface of the spiral, the coils of which are parallel and one-eighth of an inch apart. This arrangement of the coils is insured by slightly curving the needle in a plane at right angles to its axis and to the plane of the quarter curve. Five turns of the handle introduce two complete coils of the wire, the length of which is approximately ten inches and the clotting surface at least 0·46 square inch. It is evident, therefore, that although the point of the needle is out of sight a fairly correct estimate can be made of what is happening within the sac of the aneurysm. When a sufficient quantity of wire has been introduced itself—needle is withdrawn, the wire is cut and looped upon itself—to prevent the sharp end from injuring the sac—and is pushed into the aneurysm. The hole in the sac is afterwards closed by a few point sutures.

The use of this instrument in the case narrated at the beginning of the paper shows that although it worked smoothly it did not quite fulfil all the requirements of the case, for it allowed a loop of the wire to travel out of the sac and seven inches up the aorta. An examination of the specimen shows that this diverticulum of wire was not carried into the aorta by the blood-stream, because it has gone upwards or against the direction of the blood-flow. The majority of the coils, too, are firmly implanted in blood-clot in the sac of the aneurysm. The real explanation seems to be that whilst the wire was being introduced into the sac some of the coils became hampered in their revolution and the wire was driven out in a loop at one point. The coils of wire then ceased to revolve until the resistance to the further introduction of wire became so great that it could not be overcome by the milling tool, which slipped upon the wire instead of biting it and so brought to an end this part of the operation. The best method of preventing such an accident on another occasion would be to introduce the wire so that the coils are not all in one piece. This can be done by dividing the wire into sets of coils—a method which has the further advantage of diminishing the ever-increasing resistance to its introduction. It does not seem possible to make one length of wire push the previous length through the needle into the sac, partly because the wire is too fine, partly because it does not exactly fill the needle when it has been milled, and partly because it is inconvenient to feed a needle with detached lengths of wire. As a matter of experiment, when such an attempt is made the two sections either jam in the needle or the hinder piece of wire kinks. The only alternative, therefore, seems to be to cut the coils as they leave the eye of the needle, and this must be done without withdrawing the needle from the sac of the

FIG. 1.

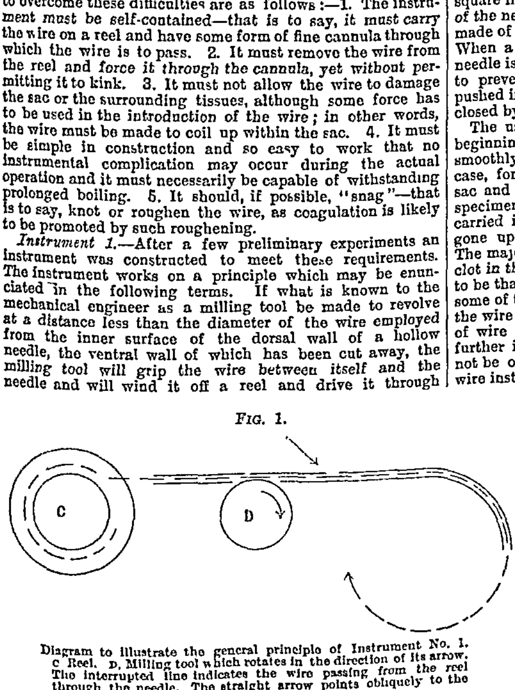
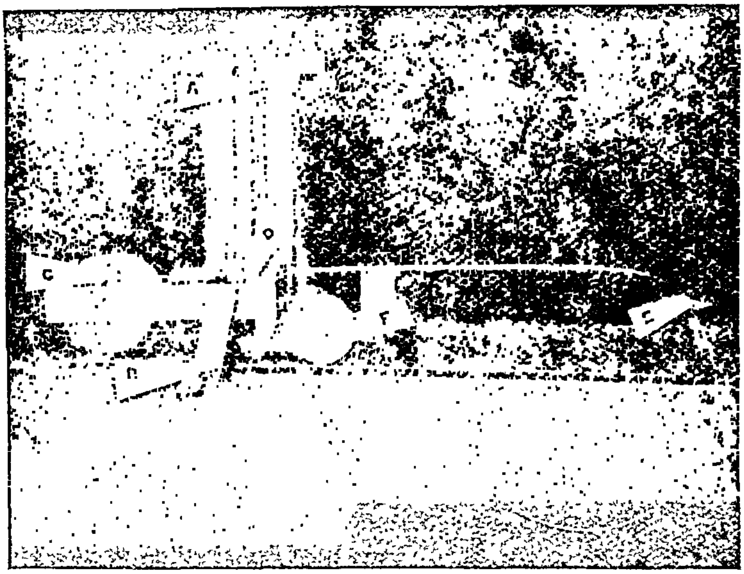


Diagram to illustrate the general principle of Instrument No. 1. C Reel. D, Milling tool which rotates in the direction of its arrow. The interrupted line indicates the wire passing from the reel through the needle. The straight arrow points obliquely to the opening for the stilette.

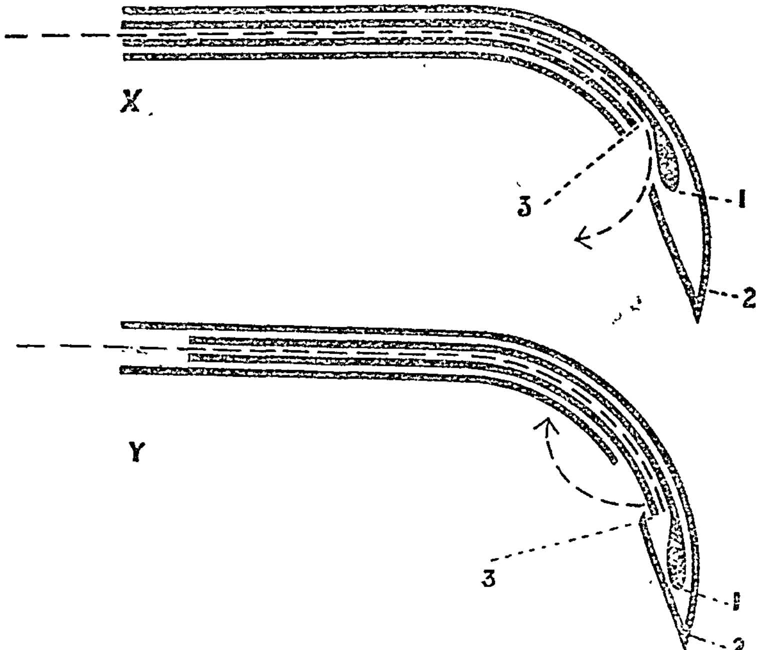
aneurysm. The wire can be divided in several ways, but the method now to be described seems to be the simplest and most practical and was not decided upon until after the others had been tried.

FIG. 2.



Flag labeled side view of instrument No. 2, about one-third natural size. Enlarged from a photograph taken by Dr. E. H. Hunt. A, Fixed handle for operator's left hand. B, Moveable handle for operator's right hand. C, Reel. D, The arch is the situation of the milling tool. E, Placed between the lateral eye of the outer needle and the coil of wire emitted. Near E the dorsal opening into the inner needle is seen. F, Stud by means of which the outer needle is caused to slide over the inner needle. A portion of the rackwork with its stop is seen between F and B.

FIG. 3.



Diagrams to show how the wire is severed at the lateral eye of the needle. 1, inclined plane at the end of the inner needle; 2, outer needle; and 3, cutting edge of the inner needle. In Fig. X the wire, represented by an interrupted line, after impinging on the inclined plane emerges as shown by the arrow. In Fig. Y the outer needle has been retracted over the inner and has severed the wire at 3.

Instrument 2.—The second instrument (Fig. 2) differs in many important points from the first instrument. There are no gear wheels and the milling tool is driven direct. The needle is sufficiently long to remove the mechanism to a distance from the wound. Lastly, the instrument is able to take a thinner wire and a stilette is not required. The coils are divided by the following mechanism (Fig. 3): The hollow needle (X) along which the wire travels is encased i second needle (X 2), which exactly fits it. The en the inner needle is completely blocked up by a mi inclined plane made of steel (X 1 and Y 1), whic securely brazed in position and is so arranged that it f the oncoming wire. A lateral opening is made thr both needles at their distal ends in such a manner that an eye ·is n with the depressed edges seen in better kinds of Jacques's rubber cathe When the two hollow needles are accur adjusted (X) the lateral opening is contin from the inside of the inner needle to outside of the outer needle and through opening the wire is directed by its im on the inclined plane (X 1) which block end of the inner needle. The tube of inner needle is soft and flexible excep the eye, where it is tempered. The needle is quarter-curved, tempered thro out, and pointed. The inner needle ad itself to the curve of the outer needle i relative changes of position. The needle is attached to a rack and pi placed close to the hand of the oper and a movement of the pinion ca the outer needle to slide over the i needle (Y). The relation of the lateral of the outer tube to the lateral eye of inner tube is thus altered, and by mear a stop on the rackwork the operator k the relative position of the two eyes when they are hidden from his The alteration in the two parts of eye is sufficient to divide the wire, w may thus be guillotined wherever as often as the operator chooses. pinion is reversed when the wire been divided until the stop is countered, when a fresh series of can be introduced into the sac of aneurysm.

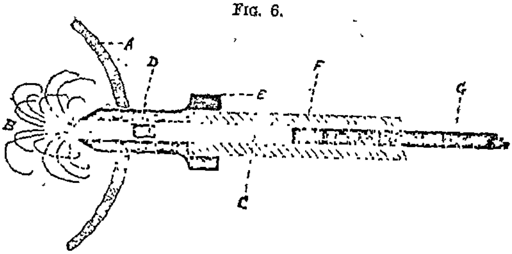
The wire employed is No. 27 on Standard Wire Gauge and is 0·016 an inch in diameter, or rather less half a millimetre across. It is soft anne silver wire and is supplied by any firm of wire-drawers at 6*s*. an ounc about 22 yards. It is flattened by pas under the milling tool and it is 0·0215 of an inch in width and 0· of an inch in thickness. It now ha slightly increased surface area, the sur area of the original wire being 5·152 sq inches per length of 100 inches. exquisitely flexible and easily bends in plane of the coil, though it is relati rigid to stresses in any other plane. I hardly possible to imagine it causing damage inside an aneurysmal sac, and is in the highest degree unlikely tha would pierce the wall. The diameter c coil is three and a quarter inches, bu coil readily adapts itself to the wall o cavity smaller than itself.

With this instrument ten turns of the har introduce two complete coils of wire, o length of 20 inches. When the instrumer used to wire a large aneurysm five turn the handle should be made before the wir guillotined, for if fewer turns are made than a coil is introduced, and when sn pieces of wire are allowed to sink in sac of an aneurysm there is a danger t they may be carried out into the gen blood-stream with unsatisfactory resu The instrument is undoubtedly an provement on Instrument 1, though t improvement has been partly attained addition and not by simplification as could have b desired. Even with Instrument 2 there is still a suspic in the mind of the operator that all may not go qu satisfactorily at the operation and that a free end, rather th a loop, of the wire may enter the vessel from which aneurysm arises and possibly interfere with the action of the aortic valves. This accident has occurred when aneurysms have been wired by the usual method.[1] That this danger has been very greatly minimised in the present instrument few will deny, but no one will affirm that it is entirely absent. Experiments were therefore made in a different direction and resulted in the device now to be described.

Instrument 3.—The object of this device is to [illegible]

The figure represents a spherical wire cage and it was proposed to compress it and pass it through a fine cannula, on emerging from which it would expand and come into contact with the walls of the sac. The spherical form is difficult to make and unsatisfactory in action and it is questionable whether it is as good as the actual device resorted to. This is represented in Fig. 5 and consists of a bunch of fine steel wires caught together with solder at their mid-points, each wire being curled over in a separate plane so that the whole arrangement fits

FIG. 6.



Diagrammatic sectio [illegible] ., Sac of the
aneurysm. B, Th [illegible] compressed.
D, Solder at the c [illegible] he cannula.
F, Cartridge. G, Ra [illegible] to B would
represent a "wisp"

FIG. 4.

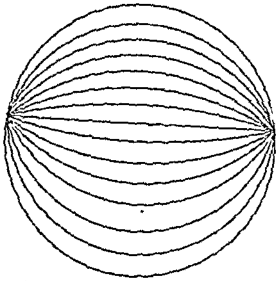


Diagram of the ideal arrangement of an expanding cage.

sphere of three inches diameter, though it can be made f any size. In this particular size there are 30 wires, each ve inches long and 0·0076 of an inch in diameter, and he total surface area presented for clotting is as nearly as

FIG. 5.

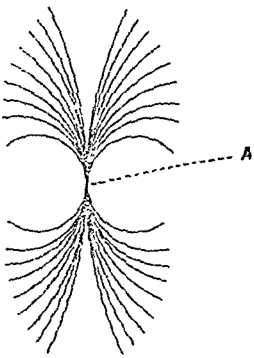


Diagram of the actual arrangement of an expanding cage. It can be compressed to its diameter at the central part (A), and after traversing a fine cannula will expand again.

possible three and a half square inches, which is equivalent to nearly 70 inches of the silver wire used in Instrument 2 When compressed the model is a cylinder five inches long and one-sixteenth of an inch in diameter. It is inserted into a fine tube or cartridge of the same internal diameter as the cannula employed to traverse the sac and is used by adapting the cartridge to a collar on the cannula and then pushing the cage through with a steel ramrod into the sac where it immediately expands. *Fig. 6 represents this occurring in situ.* One objection which suggests itself is that the second half of the cage does not expand until it is completely freed—that is to say, until the first half has moved onwards about two and a half inches from the end of the cannula. This might cause injury to the opposite wall of the sac by the half already introduced, but the danger can be prevented by using *only a* half cage or "wisp" which has already *completely expanded* when it is set free. This objection might have some weight in treating a small aneurysm, but having regard to the fact that the wires are fine and lissom and readily bend on contact with anything fairly solid, although stiff enough not to vibrate in the blood-current, it is not of great moment. In the case of a large sac it would not be necessary to substitute the wisp for the cage. The advantage of the cage, on the other hand, is that a foreign surface is introduced all round the walls, while a clotting surface is also maintained at the central portion of the sac It is therefore probable that a firm even clot will form throughout. More than one cage can be introduced if it is thought desirable to increase the clottin [illegible] that the second cage may [illegible] d when the [illegible] m it is usually progressive. Moreover, in the cases so far reported the most successful seem to have been those in which a relatively short length of wire was inserted, as in the cases by Langton, Loreta, and Morse.

The advantages claimed for the instrument as a whole are that the apparatus is exceedingly simple and that the actual wiring of an aneurysm can be accomplished after a little preliminary practice in a very short time and with the minimum of trouble. In a suitable case it could be performed under cocaine, after freezing, or without any anæsthetic, as in tapping a hydrocele. Thus in five seconds from the time of puncturing the sac a sterile foreign body, presenting a clotting surface of relatively large value, can be gently placed in position and evenly distributed in the aneurysm with very slight risk of its injuring that structure or of its moving when once it is in position. When a wisp is used care would be taken to puncture the sac in a direction estimated, as far as is possible, to be towards the plane of its opening, because the wisp expands and curls back directly it begins to emerge from the cannula and there is therefore less danger of any of the wires projecting through the opening. When a cage is employed it will probably adapt itself better to the larger sac if the puncture is made in a direction parallel to the plane of the opening. It is also advantageous to arrange for closing the puncture wound before withdrawing the cannula. It is clear that from the time the cartridge replaces the trocar of the cannula the method of procedure will be nearly a bloodless one and it is not likely, therefore, to frighten a patient who is only under the influence of a local anæsthetic. Thus one of the chief objections[2] to performing the operation without an anæsthetic is to a great extent removed and the whole proceeding facilitated.

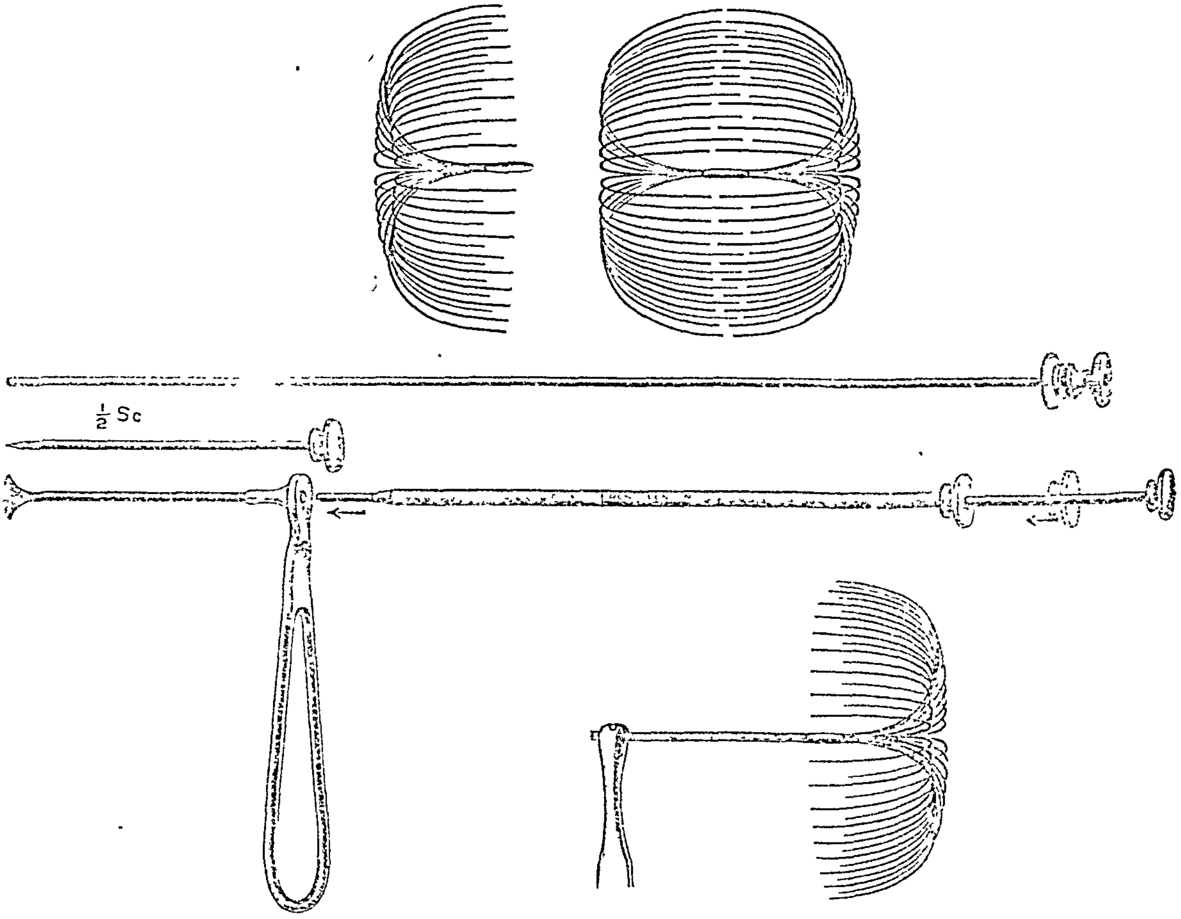
---

[1] Johns Hopkins Hospital Bulletin, November, 1900 (Reeve's case).

[2] Annals of Surgery, July to December, 1901 (De Forest Willard).

If desired electrolysis may be employed. For this purpose there is special provision made in the complete set of Instrument 3, which Messrs. Down Brothers, Limited, have made from our models (Fig. 7). The cannula is insulated and the current is led in through a terminal screw on the end of the ramrod connected with the positive pole of the electrical apparatus. A wisp having been placed (all but its hinder inch) in the sac the ramrod makes contact with it and the current is passed. Encouraging results have been reported when only a single wire was employed and it is hoped that still more satisfactory results will be obtained when electrolysis is used with an evenly distributed multiple wire. The conditions which obtained in Stewart's second case[3] approximated to this and the result was eminently satisfactory. The experiments recorded which show that electrolysis does start the process of clotting are not very numerous at present and need confirmation. The conditions of current distribution which appertain to the electrolysis of a nævus are so entirely different that an argument in favour of electrolysis in the present instance derived from such cases is not of great value. A wisp is probably better than a cage for the treatment by electrolysis, as there is less danger of the clot already formed on it becoming dislodged when it is finally pushed home. If steel or iron are considered unsuitable materials to employ, owing to their being readily corroded by the electrolytic action, wisps may be obtained which have been thinly gilded. Gold takes excellently on the fine wire and if left dull is possibly an acquisition to the method, even when electrolysis is not carried out, for the surface of the wire is made very finely granular. The gilding prevents the apparatus in stock from rusting, though this is not of much moment because all the parts are contained in a suitable aseptic case. It also prevents corrosion during the process of sterilisation.

FIG. 7.



Instrument 3. The essential parts of the apparatus.

The most successful cases in the literature of the subject have been those in which electrolysis has been carried out with a current of only 10 to 20 milliampères. Such a current when distributed by a wisp has a very small value at any given point or over any small area on the wire, and it takes over three days for the ungilded wisp when tried in normal saline solution to corrode completely through. Thus if the current be 20 milliampères and a five-inch wisp be employed the current distributed by one inch of the wire at any part is only 0·00013 of an ampère, and in one hour 0·00143 of a grain of iron will be oxidised from this inch of wire. The total quantity of iron removed from the whole surface of the wisp in one hour is one-fifth of a grain. Since a wisp weighs about 15 grains and the electrolytic action is equal at all points, the resistance of the wire being many times less than the resistance of the surrounding blood, the complete disintegration of a portion of the wire during the operation is exceedingly improbable. Whatever form of steel or iron wire is taken, this last number, *cæteris paribus*, holds good. Hunner[4] considers that within limits the wire most readily corroded is to be preferred. For the present it seems better to treat an aneurysm without electrolysis in the first instance and then at a subsequent date to repeat the operation, if necessary, with electrolysis. In this manner and with increased experience it will become evident whether there is any great value in electrolysing the blood in the sac, or whether a reasonable hope of cure or benefit may be held out without electrolysis when the aneurysm is wired by a cage or wisp.

In conclusion, we give the directions sent out with each set of Instrument 3 by Messrs. Down Brothers, Limited, who are the authorised makers of the instrument.

DIRECTIONS FOR USING THE APPARATUS FOR WIRING ANEURYSMS.

Contents of the case.—One trocar and cannula two inches long; one trocar and cannula four inches long; one trocar and insulated cannula marked A, four inches long; four cartridges numbered one to four; two ramrods, one long and one short; one special ramrod with clamp for attachi[illegible]h insulated cannula; one clip for folding [illegible] to two and a half inches containing 75 i[illegible] being one and three-quarter ready for use. An estimate is made, as far as possible, before and

---

[3] Brit. Med. Jour., 1897, p. 386.

[4] Johns Hopkins Hospital Bulletin, November, 1900.

slightly when all will go smoothly. When the wisp is used it is recommended to puncture in a direction estimated as towards the plane of the opening of the sac into the vessel from which it arises; when a cage is employed, in a direction parallel to this plane. When the longer cannula is used the longer ramrod must also be used. To insert a wisp into the cartridge place the soldered

id manipulate
wires to cross;
plane and the
position. To
portion of the

cage with the clip provided and by drawing it towards the end fold up one end of the cage. Insert this in the studded end of the cartridge and then manipulate into position as for a wisp, finishing with a ramrod. When in position, a wisp or cage should just be visible at the end of the cartridge which fits the cannula. If electrolysis is to be employed use the cannula marked (A) and the

powdered with lime, and packed in the cartridges until required.

A CASE OF MALIGNANT DISEASE FOLLOWING SPLENIC ANÆMIA.

BY C. H. SEDGWICK, M.A., M.B., B.C. CANTAB.,
LATE HOUSE PHYSICIAN, ST. THOMAS'S HOSPITAL.

THE following case being one of considerable clinical interest and presenting much difficulty in diagnosis during the earlier stages of illness, I think is worthy of being recorded.

The patient was a man, aged 56 years, whose family history was good, there being no history of malignant disease. He had suffered from chronic bronchitis for the last 12 years, but otherwise he had always been a healthy man There was no history of alcoholism or of syphilis. He had had a severe attack of influenza (pulmonary type) in 1896 and was treated for gastric catarrh of some severity in March, 1901. About this time there were occasional dyspeptic attacks, probably owing to the bad condition of the teeth. The patient had suffered for the last 25 years from psoriasis, during which time he had been treated with preparations containing arsenic (according to his statement). He was apparently in good health until the onset of his illness, although his friends had remarked an unusual sallowness of complexion during the previous few months. On July 7th, 1901, he felt somewhat faint and unwell during the day and ... he suddenly vomited

a few ou ... whatso-
ever. H ... iet. On

the 8th, at 5 A.M., the hæmatemesis recurred, the vomit consisting of about three-quarters of a pint of dark red blood mixed with food. There was no pain but he was rather collapsed. On the 9th the hæmatemesis again recurred, about half a pint of blood being vomited. He had been kept in bed since the first attack of hæmatemesis and restricted

During this relapse he remained in bed for one week and was placed on a strict milk diet, after which he steadily improved but remained a little more anæmic than before. The case was regarded as one of duodenal ulcer. On August 21st the patient had another attack of hæmatemesis, about one pint of blood being vomited, and 30 hours afterwards, though contrary to orders, he left his bed to go to stool, as a result of which a large hæmatemesis occurred to the extent of about one and three-quarters of a pint and he was very much collapsed. Rectal feeding was now resorted to, which was followed by milk diet after eight days, and the patient remained in bed for eight weeks, during which time his symptoms were comparatively slight, there being no pain anywhere, but there was slight abdominal distension which caused him some discomfort. The anæmia was now very marked, the appetite was bad, and the general weakness was great. A physical examination showed slight abdominal distension with a small amount of free fluid in the abdomen; the spleen was not felt. There was some tenderness over the epigastrium, more particularly on the right.

A fortnight later (Sept. 4th) no ascites could be detected but the abdomen was still considerably distended. The anæmia was still more intense, the appetite was bad, and the general weakness was marked. The patient had been taking a mixture containing strychnine and iron. During the next few weeks he made no improvement, the anæmia was still more intense, and the general weakness, if anything, increased. On Oct 25th he went to Hastings. He was then able to walk about 100 yards at a time but was extremely feeble. On Nov. 1st he complained of not feeling so well and at midnight had a bad attack of hæmatemesis, more than a pint of blood being vomited, unaccompanied by pain. A ... examination now showed considerable

abdomin ... istric tenderness as
before, t ... felt descending one
inch bel ... was very firm The
edge of ... no free fluid in the

abdominal cavity and no enlarged glands were to be detected anywhere over the body. The skin had a lemon-yellow tint and was waxy-looking, the muscles generally being very soft and flabby.

There were no abnormal constituents in the urine. In an examination of the blood the differential count of the white cells was normal. No abnormal cells were seen. (A blood film only was taken.) The treatment consisted of rest in bed, a milk diet, and the administration of iron and arsenic in the following form. one-fortieth of a grain of arsenious acid, one grain of reduced iron, and one grain of sulphate of quinine, as a pill, three times a day. The case was now regarded as one of splenic anæmia.

There was considerable improvement during the next few days, but another attack of hæmatemesis occurred (about one pint) 14 days later, after which rectal feeding was again resorted to for eight days. The spleen was noticeably diminished in size after the hæmatemesis The administration of iron and arsenic was continued and the patient remained in bed for ten weeks, after which time the anæmia was very much less, the appetite improved, and he was decidedly stronger. The spleen, however, remained very large, being now two inches below the costal margin, and there was occasional pain in the left side low down in the axilla On Feb. 1st, 1902, the patient returned home remarkably improved, the anæmia having practically disappeared. The spleen was no smaller. On the 8th, after a drive of two hours in a cold wind, he complained of pain in the left side and a troublesome cough. An examination on the following day showed loud friction in the left axilla (in

h fine crackling crepitation in
ase of the left lung. There

was profuse expectoration of frothy, pink-coloured, mucoid material, very tenacious, occasionally intermixed with small clots of blood of about the size of a pea. There were no abnormal physical signs over the right chest The temperature was normal. The spleen was still enlarged, the edge being felt two inches below the costal margin. On March 1st the cough had diminished, as also had the expectoration, but the character remained the same. The friction rub had disappeared. The temperature had remained normal throughout. Between March 18th and April 3rd the cough persisted and the expectoration was as before. The patient complained of pain on both sides of the chest, especially on movement. A nodular enlargement of the extremity of the eleventh rib on the right side was noticed which was very tender on pressure. There was similar tenderness on pressure over the eighth left rib in the mid-axillary line. No nodule was detected. The spleen was as before, the abdomen was rather distended, and the edge of the liver was just felt. During this time the iron and arsenic pills were discontinued. On April 7th the patient felt rather faint in the morning and complained of nausea and general bodily pains; the anæmia had become noticeable again. In the evening he passed a black, tarry stool. The iron and arsenic were resumed and the patient was put back on the milk diet and ordered absolute rest in bed. On the 9th the melæna continued. Hæmatemesis (one pint) recurred after a stool (the patient being in bed). The pulse in the morning was 94 per minute and the temperature was 98·6° F. The edge of the liver was felt half an inch below the costal margin. The spleen was as before. There was no glandular enlargement. The patient was ordered rectal feeding for eight days, to be followed by a milk diet; the arsenic and iron were continued. Melæna persisted till the 14th. The pulse had now become rapid, varying from 100 to 120. The respirations were 24 per minute and the temperature was normal. On the 16th the differential count of white corpuscles was normal. The blood film showed no abnormal blood cells but, however, considerable poikilocytosis and polychromatophilic degeneration of Ehrlich. A distinct nodule was detected over the eighth left rib in the mid-axillary line. On the 18th the pulse was 104, the respirations were 24, and the temperature was normal. The spleen was felt two inches below the costal margin. The abdomen was much distended and the patient complained of flatulence The cough was still troublesome. Rhonchi were heard over both lungs scattered everywhere and there was much crepitation at both bases. The expectoration was white and frothy with occasional streaks of blood. By the 30th the edge of the liver was felt about one and a half inches below the costal margin. Two nodules of about the size of a small walnut could be distinctly made out over the anterior surface of the liver, which was rather tender on examination. The spleen was as before. The abdominal distension was now very considerable and there were signs of free fluid in the flanks. The cough was very troublesome. The anæmia was very profound but there was no trace of jaundice. The pulse was 110 and the temperature was 99·6°. The case now presented features suggestive of malignant disease, rapidly increasing weakness and emaciation, with anorexia, and nodular enlargement of the liver. The enlargement was more pronounced in the left lobe. There was also nodular thickening over certain ribs, probably of metastatic origin. No enlarged glands were to be detected anywhere. There were no symptoms by which one could localise the primary focus.

The further history of the case may be given shortly. The liver became enlarged and finally reached some four inches below the costal margin in the right nipple line, the edge of the liver being traced to the left across the epigastrium to the tenth rib; the nodules on its surface were easily apparent through the abdominal wall. The spleen retracted somewhat under the ribs but continued very firm and hard. The ascites was increased. The lung signs remained the same but the cough became very distressing. During the last four weeks of life there was irregular pyrexia varying between 99° and 102° and the pulse never fell below 108 per minute The stools became very offensive, of a greenish colour, and contained much mucus, there being from two to three motions a day. Incontinence of fæces developed a fortnight before death, which occurred on June 23rd, during which time the patient was in a semi-comatose condition.

Permission to examine the thorax and the abdomen after death was obtained, with the following result. Both lungs were found to be emphysematous and the pleura was adherent over the outer aspect of the lower lobes of both the right and the left lungs. In the left apex was found a small nodule of growth, of a soft, semi-fluid consistence, hæmorrhagic, and about one inch in diameter. A similar but larger nodule was found in the upper lobe of the right lung. The mediastinal glands were very much enlarged and on section showed infiltration with the same soft neoplastic material. The fifth and eighth ribs on the left side and the ninth and eleventh ribs on the right side showed metastatic nodules about one and a half inches in diameter, the rib in each case being fractured in the centre of the growth. The heart was enlarged slightly, with strong pericardial adhesion over almost its whole surface, the muscle being rather soft and pale. There was no valvular disease. The abdomen was considerably distended and a few pints of clear, reddish-yellow fluid were removed from it. The liver was very much enlarged and irregular, the enlargement of the left lobe being very conspicuous. Over the anterior surface were scattered several projecting nodules of dark-red colour of about the size of a walnut and of soft consistence which on section were found to consist of hæmorrhagic, diffluent, semi fluid material. On section through the whole organ numerous such nodules of varying size were brought to view and in each case the neoplastic deposit was in a disintegrated semi-fluid condition. There was no involvement of the gall-bladder. The spleen was uniformly enlarged (eight inches in its long diameter), very firm, and was bound by strong adhesions to the under surface of the diaphragm and the left aspect of the stomach, where the adhesions were of a cartilaginous consistence. The capsule was very much thickened and covered, especially on its posterior surface, with much lymph exudation which was partially organised. On section there was no sign of neoplasm but the organ was very fibrous throughout and engorged with blood. The stomach was rather smaller than normal. The mucous membrane showed very extensive, probably recent, ecchymosis over a large part of the fundus corresponding to the area of the stomach adherent to the spleen. Over the pyloric region posteriorly was much dark pigmentation, probably the result of old ecchymosis. There was no ulceration of the mucous membrane in either the stomach or the duodenum. The walls of the stomach were thin and the mucous membrane was rather atrophied. There was no affection of any of the abdominal lymphatic glands; the right inguinal glands were slightly enlarged and infiltrated with the soft neoplastic material. There was nothing abnormal to note concerning the intestines, the pancreas, or the suprarenals. The kidneys were pale, slightly enlarged, and rather fatty; the capsule stripped easily. Owing to the very soft nature of the growth and the fact of its already being in a disintegrated condition microscopical examination was unsatisfactory. No definite conclusion as to the exact nature of the growth could be arrived at, though it was in all probability carcinomatous.

The above is a summary of the principal features of a case which is interesting both from the diagnostic and clinical point of view. It may be granted fairly, I think, that the malignant disease, wherever the primary focus lay, was not the primary cause of the illness, but that it supervened on splenic anæmia. Another point, which touches on some recent observations on the causation of malignant disease and its relation to arsenical administration, is the fact that the patient for some years previously had been treated with arsenic for psoriasis and with a very considerable amount of relief.

Grove Park, S.E.

A CASE OF SUBACUTE INDURATIVE PNEUMONIA.

BY O. K. WILLIAMSON, M.A., M.D., B.C. CANTAB., M.R.C.P. LOND.,
MEDICAL REGISTRAR TO THE MIDDLESEX HOSPITAL; PHYSICIAN TO OUT-PATIENTS, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA-PARK;

AND

J. G. EMANUEL, M.D., B.S., B.Sc., M.R.C.P. LOND.,
PHYSICIAN TO OUT-PATIENTS, QUEEN'S HOSPITAL, BIRMINGHAM; LATE RESIDENT MEDICAL OFFICER, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA-PARK.

A GIRL, aged 17 years, was admitted into the City of London Hospital for Diseases of the Chest, Victoria park, E., on Feb. 27th, 1900, under the care of Dr. T. Glover Lyon, complaining of pains in the right side of the chest, cough, expectoration, shortness of breath, and weakness. She had been ill for six weeks and the last four weeks of this time she had been in bed. Her previous health had been good, excepting that she had had scarlet fever seven years and measles six years previously. Six weeks before admission she complained of pain in the right shoulder which lasted for about four days and then disappeared. Ten days later, however, it reappeared and she was advised by her medical attendant to go to bed, and this she did, not on account of the gravity of her symptoms, however, but "because her doctor told her to." She remained at home in bed for four weeks and as she steadily lost ground she went to the hospital and was admitted. During these four weeks the pain in the right side of the chest had been constant and it had been aggravated by coughing and by taking deep inspirations. During this time she had also suffered from cough accompanied by expectoration. She had only noticed that her breath was short for one week and during this week she had had profuse night sweats. Two weeks prior to admission she had coughed up about half a pint of blood and had been expectorating stained sputum ever since. She had been getting paler, losing flesh, eating and sleeping badly, and getting gradually weaker during the four weeks she was in bed at home.

On admission the patient was pale, looked ill, and had recently lost much flesh. The pulse was 96 and the temperature was 98·6° F. She had no dyspnœa as she lay in bed. She had some cough and was expectorating blood-stained sputum. On examination of the chest the expansion of the right side was found to be impaired and that of the left side was exaggerated. The results of the examination of the right lung were as follows. Anteriorly, over the upper three spaces, the percussion note was unimpaired, the breath sounds were weak, expiration was prolonged and equal to inspiration, and both vocal resonance and vocal fremitus were diminished. Below the third space there was dulness which became continuous with the hepatic dulness, the breath sounds were weak and bronchial, vocal resonance and vocal fremitus were absent, and there was whispering pectoriloquy. Posteriorly, in the supraspinous fossa, the percussion note was unimpaired, the breath sounds were a little weak, and expiration was prolonged and equal to inspiration. The vocal resonance and the vocal fremitus were normal. Below the spine of the scapula and in the axilla the percussion note was dull, the breath sounds were weak and amphoric, the vocal resonance and the vocal fremitus were diminished, and there were ægophony at the angle of the scapula and whispering pectoriloquy all over the base. The breath sounds were faintly audible down to the very base. There were no adventitious sounds throughout the chest. In the left lung, anteriorly and posteriorly, the percussion note was resonant, the breath sounds were exaggerated, the vocal resonance and the vocal fremitus were normal, and the entry at the base was good. The cardiac impulse was in the fourth space in the vertical nipple line and the heart sounds were clear at all the cardiac areas. Examination of the abdomen revealed nothing abnormal, the liver and the spleen were not palpable, and the urine was normal.

The case ran a downward course from the beginning. The patient died three months after her admission to hospital. During these three months the temperature continued irregularly intermittent, the evening temperature varying between 101° and 102·5°, while the morning temperature fell to 98° or 99°. The pulse-rate was always above 100 per minute and during the last month it ranged from 120 to 130 per minute. During the latter six weeks of this time diarrhœa was a prominent symptom, the patient having three or four loose motions daily.

With the exception of the free hæmoptysis which occurred two weeks before the patient went to the hospital there was not any free hæmorrhage from the lungs, but during the whole of the time that she was under observation at the hospital the sputum was stained with blood. The sputum was again and again examined for tubercle bacilli but with a negative result. The cough continued all the time and was constantly accompanied by blood-stained expectoration. During the first four weeks the expectoration was small in amount, averaging about one ounce per day, muco-purulent, and not offensive, but one day (March 30th) the patient suddenly brought up, after a paroxysm of coughing, a large quantity of very offensive, purulent, grey-coloured sputum. From this [illegible] daily large quant[illegible] putum, avera[illegible] asured over ten ounces and on two occasions 14½ ounces were measured.

Owing to the belief that the patient was suffering from an empyema communicating with the right lung or from an abscess in the base of the lung, the right chest was explored with a needle on five occasions but without finding the source of the pus. Some time in April the sputum was noticed to be reddish-brown and closely to simulate so-called "liver pus," and an abscess of the liver communicating with the lung was suggested. On May 7th a sixth exploration of the right chest in the seventh space midway between the right vertical nipple line and the right edge of the sternum discovered exceedingly offensive, straw-yellow, watery pus. A portion of a rib was accordingly resected, a quantity of this highly offensive straw-coloured watery pus was evacuated, and the cavity was drained. No communication could be made out at the operation between this empyema cavity and the lung, nor, indeed, was such a communication anticipated, since the pus that was being expectorated, though it resembled the evacuated pus in point of its great offensiveness, differed in its other characteristics, for one was straw-coloured and watery and the other was reddish-brown and much thicker. As the patient did not improve after the draining of this empyema, but was fast losing ground, and as the "liver pus" continued to be expectorated in large quantities it was resolved to explore the liver and accordingly an exploratory laparotomy was performed on May 16th. At the operation the liver was found to be enlarged but in other respects it was quite healthy. The patient died from broncho-pneumonia of the hitherto apparently normal left lung on the third day, the laparotomy wound being healthy.

Necropsy.—At the post-mortem examination the body was found to be wasted. The abdominal wound was healthy, there being recent adhesions around it. The wound in the thorax was also healthy and here the two layers of the pleura were seen to be separated, forming a cavity the length of which from above downwards was about four or five inches. Everywhere else the visceral and parietal layers of the right pleura were adherent, the adhesions being very firm and the pleura being thickened throughout except at the apex of the upper lobe. It was impossible to separate the lung from the chest wall without tearing its substance, and the diaphragm, the diaphragmatic pleura, and the lung were firmly incorporated with one another. The visceral pleura at the site of the interlobar fissures was covered with yellow lymph. The left visceral pleura showed some recent inflammation on the outer surface of the lung rather below its middle but there were neither fluid nor adhesions on this side. There were a few fibrous adhesions between the parietal pericardium and the sternum with some excess of clear fluid in the pericardial cavity but no signs of recent inflammation. The peritoneum was normal. The right lung weighed 28½ ounces and the left weighed 20½ ounces. The right lung was markedly diminished in size and was non-crepitant. On section the upper lobe was pale and practically airless; it was homogeneous in appearance and its consistence was markedly increased. In the lower lobe, extending from about one and a half inches below the apex to the base and nearer the posterior than the anterior surface, was a large, irregularly shaped cavity, the walls of which contained fibrous tissue. In colour the walls were in some parts green, in other parts red, and the cavity contained some foul-smelling fluid and particles of necrosed lung tissue. The cavity was torn open on removing the lung. The rest of the lower lobe and the middle lobe were similar to the upper, but not of uniform colour and more friable, showing in places areas of thick pus of the size of a millet seed. The left lung was emphysematous as regards the upper lobe, and the lower lobe for the most part was non-crepitant. On section there was found to be some œdema of the upper part. The lower part, especially the posterior part of the lower lobe, exhibited light-coloured patches of broncho-pneumonia of the size of a pea, coalescing to form a solid mass which broke down easily and which was granular on the surface. There were on this side also some areas of thick pus of the size of a millet seed. This lung showed no obvious fibrosis. There was no dilatation of the bronchi in either lung. The heart weighed eight ounces, its cavities contained some ante-mortem clot, and its muscle was rather more friable than normal. The aorta and pulmonary artery were healthy. The liver weighed 70 ounces. It was very large, especially as regards the right lobe. Over a considerable area it was firmly adherent to the diaphragm. On section it was pale and markedly friable. The spleen weighed seven and a half ounces and was found on section to be firmer and more brittle than normal. The kidneys each weighed six and a half ounces and were on section found to be rather more friable than normal. The suprarenal capsules and the pancreas were normal, as was also the large intestine. The small intestine, especially the ileum, showed marked congestion of the mucous membrane. In the right broad ligament was a cyst of the size of a large cherry. There was nowhere any evidence of tuberculosis.

Microscopical examination.—Sections of the lungs stained with carbol-fuchsin and methylene blue failed to reveal the presence of tubercle bacilli. Sections were made from the centre of the upper lobe of the right lung and from the left lung. The left lung showed distinct fibrosis, although there were no naked-eye signs of this, but the process was seen to be much less advanced on this side than on the right. In the sections from both lungs the alveoli were in places seen to contain a mass of coarsely granular material with many nuclei, sometimes connected with the wall of the alveolus by a band of connective tissue. In places this central plug was evidently becoming converted into fibrous tissue. The walls of the alveoli were also in places seen to be thickened. In other parts the cavities of the alveoli were completely obliterated by fibrous tissue, indicating a more advanced stage of the process, this being observed more especially in the right lung. Besides the above changes there was evidence of fibrous thickening of the interstitial tissue of the right lung.

The rarity of subacute indurative pneumonia is our reason for publishing in detail this case. Whether this rarity is more apparent than real it is difficult to say, for it is conceivable that many actual examples of this condition occur but do not come to the post-mortem table and so are returned as cases of pulmonary tuberculosis, bronchiectasis, abscess of lungs, gangrene of lung, or as unresolved pneumonia. Although we have to confess that we did not diagnose this case during life, but thought we were dealing either with an empyema which we could not localise and which had burst into the lung or else with an abscess of the lung of unexplained origin, nevertheless, looking back on the case with the light thrown on it by the post mortem examination we find that many of the points that clinically distinguish this subacute form of pneumonia from other conditions were present in a typical manner. The onset, for example, though sudden, was not the abrupt onset of acute pneumonia. There was no initial rigor. The onset was marked by sharp pain in the side which was sufficiently severe for the patient to call in a medical man, but for which she did not take to bed for a full fortnight, and then only "because the doctor told her to" and not because she was feeling too ill to be up and about. This brings out another feature of the case—viz., the fact that the illness immediately following the onset had not the gravity of an acute pneumonia, by which a patient is generally compelled to take to bed from the first When the patient first came under our observation, six weeks it will be remembered after the beginning of her illness, she presented the physical signs of a cavity at the right base, and we then inclined to a diagnosis of basal pulmonary tuberculosis This suggestion was strengthened by the occurrence of hæmoptysis early in the case and by the sputum being constantly blood-stained later. Repeated examinations of the sputum failed, however, to reveal tubercle bacilli, and we consequently put pulmonary tuberculosis out of court.

The sudden change which occurred in the character and quantity of the sputum on March 30th (ten weeks after the beginning of the illness) made us, from that day on, strongly incline towards the diagnosis of a deep-seated empyema bursting into the lung. For before this day the sputum was small in amount, muco-purulent, and not offensive. And then it suddenly became abundant, purulent, and fœtid in character. Subsequent events proved this change to be due to the emptying of a gangrenous cavity in the lower lobe of the right lung.

The progressively downward course of the case from the very first, and the fatal termination in gangrene of the lung after an illness of months only (the entire duration of the case was four and a half months), are characteristic. The diarrhœa of the last six weeks is also not an infrequent symptom. The small empyema that was evacuated on May 7th (only 11 days before death) was in our opinion secondary to the septic condition of the lung, and must be looked upon as a complication of the case, and one of not very common occurrence, since, as a rule, in these cases the pleural cavity becomes obliterated at any early period by fibrous adhesions.

The post-mortem examination revealed a large gangrenous cavity in the right lung, with secondary broncho-pneumonia; and the naked-eye changes generally agreed with those characteristic of subacute indurative pneumonia. This was confirmed by microscopical examination of sections of the lungs, the left showing the process in an early stage. This examination showed: (1) the absence of tubercle bacilli; and (2) the fact of the conversion of the contents of the alveoli into fibrous plugs.

We wish to thank Dr. Glover Lyon for permission to publish this case.

Bibliography.—J. K. Fowler: The Diseases of the Lungs (Fowler and Godlee), p. 237. Percy Kidd: THE LANCET, April 5th, 1890, p. 740. Wagner: Deutsches Archiv fur Klinische Medicine, Band xxxiii. Heitler: Wiener Medicinische Wochenschrift, 1884 and 1886. Talma: Zeitschrift für Klinische Medicin, Band x. Hanau: Ibid., Band. xii. Pal: Fortschritte der Medicin, 1888.

ON THE OCCURRENCE AND SIGNIFICANCE OF CUTANEOUS HYPERALGESIA IN APPENDICITIS.

By JAMES SHERREN, F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE LONDON HOSPITAL AND SURGEON TO THE POPLAR HOSPITAL FOR ACCIDENTS.

VERY little attention seems to have been paid by surgeons to the subject of cutaneous tenderness in appendicitis and in the more recent text-books of surgery and monographs on appendicitis no mention is made of it. Head[1] and Mackenzie[2] independently in 1892 first drew attention to the subject of cutaneous hyperalgesia in visceral disease. In these articles no special attention is paid to its occurrence in appendicitis, but Head mentions that in affections of the intestine down to the upper part of the rectum superficial tenderness may appear in the ninth, tenth, and eleventh dorsal segmental areas. In the same paper Head quotes a case showing the absence of this hyperalgesia in perforative appendicitis and he has taught for some years (although I cannot find definite reference to it in any of his published works) that this superficial tenderness, if present, disappears on perforation of the appendix. In the third edition of Quain's "Dictionary of Medicine" Head in his article on Pain has given a later account of the subject but has made no special reference to the appendix. In the ten years intervening between Head's two papers I can find in the literature no mention of the subject.

In December, 1902, Müller read a paper at the Freie Vereinigung der Chirurgen Berlins on Head's Areas in Surgical Abdominal Disease.[3] In this paper he mentions "that he has found hyperalgesia in early cases of appendicitis with tolerable frequency, this hyperalgesia usually appearing in the neighbourhood of McBurney's point." Nothing further is said on the subject in this paper. Mackenzie[1] in a paper on the Nature of the Symptoms in Appendicitis mentions the occurrence of this cutaneous hyperalgesia but does not discuss its significance or the form of the disease in which it is present. Mansell Moullin[5] in a clinical lecture on the Significance of Pain and Tenderness in Cases of Inflammation of the Appendix mentions the presence of hyperæsthesia in most cases of appendicitis and also draws attention to the fact that "its disappearance suggests very strongly that the appendix has become gangrenous."

In order to discover the frequency with which this sign is present in appendicitis and to test the teaching that it disappears on perforation of the appendix I undertook this research, hoping to find an additional guide to operation in appendicitis. For this purpose during the time that I was surgical registrar at the London Hospital I examined all the cases of appendicitis that were admitted to the hospital as far as circumstances would permit But I have based my observations entirely upon cases in which the notes were taken by myself and in which the diagnosis of appendicitis was confirmed by operation at which I was present. I have also included those cases of appendicitis operated on by myself since that time as assistant surgeon to the hospital.

---

[1] Brain, vol. xvi.

[2] Medical Chronicle, 1892.

[3] Centralblatt fur Chirurgie, No. 2, 1903.

[4] Brit. Med. Jour., July 11th, 1903.

[5] THE LANCET, August 22nd, 1903, p. 514.

FIG. 1.

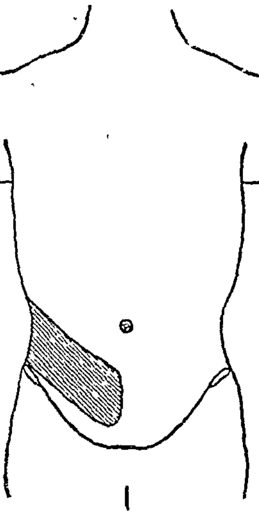
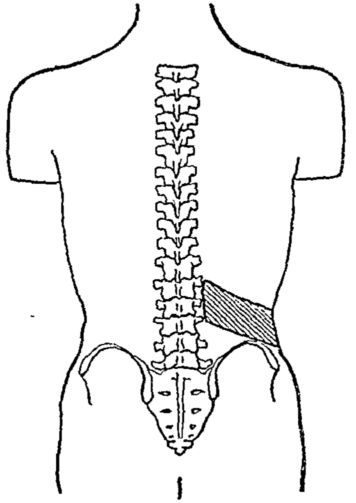


FIG 1 A.



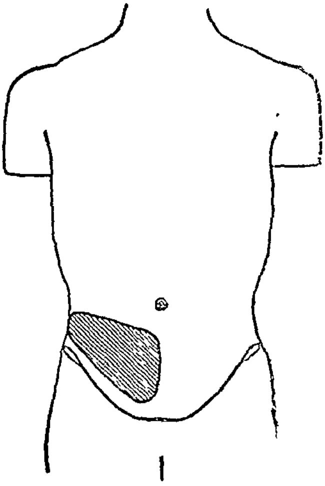
Showing the area of cutaneous hyperalgesia in appendicitis corresponding to the eleventh dorsal area of Head.

Two varieties of tenderness are met with in appendicitis—the superficial, or cutaneous hyperalgesia, and the deep. The laws which govern the appearance and distribution of deep tenderness in connexion with affections of the peritoneum have been worked out by Head.[6] My observations confirm his statements in every particular with regard to the appearance of this form of tenderness as a consequence of diseases of the appendix. I shall therefore confine my attention to the conditions associated with the appearance of cutaneous hyperalgesia. Cutaneous hyperalgesia is tested by gently pinching or stroking the skin, beginning if possible in an area which is not tender and working towards the suspected tender area and so marking out its boundaries. Care is necessary in order to avoid bringing out any deep tenderness which may be present. The skin only must be stimulated and all pressure on deeper structures avoided. In appendicitis cutaneous hyperalgesia varies from a complete band extending on the right side from the middle line below the umbilicus in front to the lumbar spines behind, down to a small circular spot a little above the middle point between the umbilicus and the anterior superior spine. This band corresponds to the eleventh dorsal area of Head[7] (Figs. 1 and 1 A). Very often the tenderness extends somewhat into the tenth dorsal area also and occasionally, but not often, into the twelfth dorsal area, sending a tongue-shaped process over the gluteal region. The width of the band is in an adult about three inches. The following case is a good example of this form of cutaneous tenderness.

CASE 1.—A boy, aged 13 years, was admitted into the London Hospital on Sept. 25th, 1902, under the care of Mr. P. Furnivall. The illness began suddenly eight hours before admission and there had been no previous attack. All the usual signs of appendicitis were present; his pulse was 116, the temperature was 101° F., and cutaneous hyperalgesia was present, as shown in Figs 1 and 1A. He was operated upon by Mr. Furnivall two hours later and the appendix was removed. The appendix was acutely inflamed but was not gangrenous or perforated.

This wide area, however, is not the one that is most often present. The usual area is on the right side of the abdomen and of a triangular shape. So often is this triangular area present that I am in the habit of describing it in my notes as the "appendix triangle" of cutaneous tenderness. This triangle is situated in the right iliac region (Fig. 2). Its lower boundary reaches almost to Poupart's ligament, its inner almost to the middle line, and its apex is a little outside the anterior superior spine, sometimes extending to the mid-axillary line.

FIG. 2.



Showing the "appendix triangle" of cutaneous tenderness.

CASE 2.—A girl, aged 20 years, was admitted into the London Hospital in August, 1901, under the care of Mr. E. Hurry Fenwick. It was her second attack and the fourth day of the attack. Cutaneous tenderness was present over the "appendix triangle" and persisted for several days, gradually clearing up as her general condition improved. The appendix was removed three weeks after admission. It was kinked and bound down by adhesions but showed no perforation.

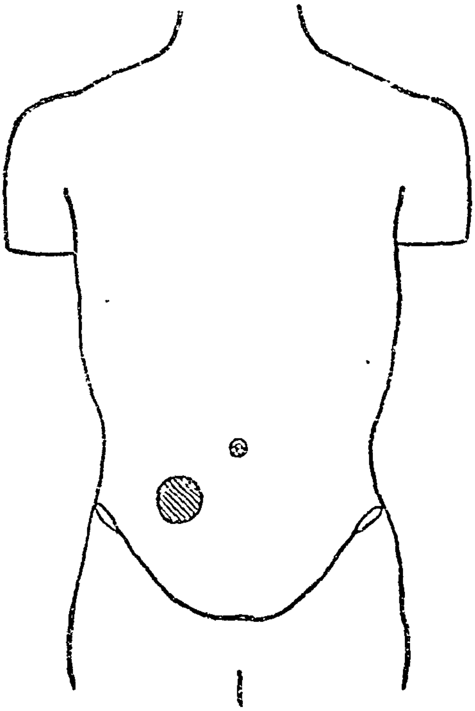
---

[6] Loc. cit.

[7] Loc. cit.

Occasionally when a patient first comes under observation only a small circular area of cutaneous hyperalgesia is present (Fig. 3).

FIG. 3.



Showing the small circular area of cutaneous tenderness occasionally present.

CASE 3.—A man, aged 31 years, was admitted to the London Hospital in February, 1902, under the care of Mr. J. Hutchinson. He was in the second day of the first attack which was mild in character. His temperature was 99° F. and his pulse-rate was normal. Cutaneous tenderness was present over a small circular area a little above the middle point between the right anterior superior iliac spine and the umbilicus (Fig. 3) and persisted for three days. The appendix was removed four weeks later and showed signs of old inflammation but no perforation.

I have fortunately been able to watch cases in which the hyperalgesia diminished from the complete band to the small circular area and many cases in which the "appendix triangle" gradually disappeared, leaving the small circular spot.

CASE 4.—A man, aged 38 years, was admitted into the London Hospital on March 7th, 1902, under the care of Dr. T. Gilbart Smith. I saw the patient six hours after the onset of the illness. His temperature was 101° F., his pulse was 100, and he showed all the usual signs of appendicitis with a complete band of hyperalgesia in the eleventh dorsal area. Six hours later this had begun to clear and had left the triangular area on the abdomen and a rounded patch just to the right of the lumbar spine (Fig. 4), the intervening tenderness having completely disappeared. On the following day the "appendix triangle" alone was tender. This persisted for one day, leaving the small circular area which lasted for several days. No operation was performed and the patient left the hospital. He came in again about a month later, having been ill for three days. No superficial tenderness was present on this occasion and an abscess was opened which contained a concretion.

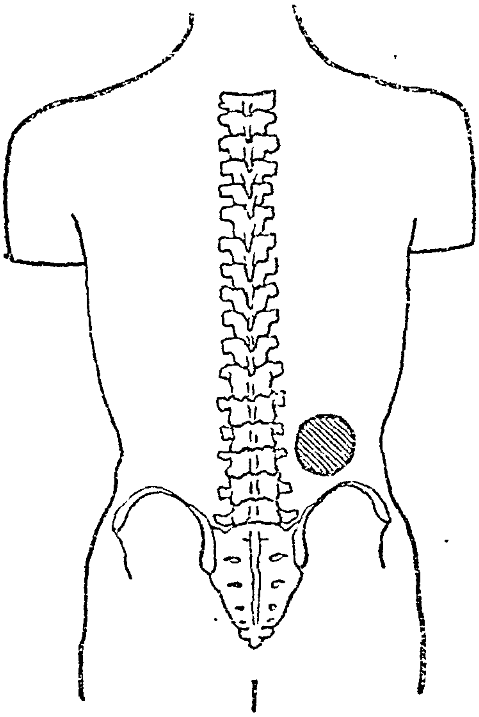
I have never examined a case of cutaneous hyperalgesia in appendicitis in which the posterior area alone was present. Cutaneous tenderness in appendicitis is occasionally bilateral. I have had the opportunity of seeing two such cases, in both of which the hyperalgesia was most marked on the right side.

CASE 5.—A youth, aged 17 years, was admitted into the London Hospital under the care of Mr. Hutchinson on May 14th, 1902. It was his fifth attack of appendicitis and he had been ill for four days. The first attack occurred eight months previously. Cutaneous tenderness was present over an area in front of the abdomen corresponding to the "appendix triangle" on the right side and a similar triangle on the left, their bases being joined in the middle line. There was no tenderness posteriorly. Operation was performed by Mr. H. L. Barnard on the same evening and the appendix was removed. Its distal end was dilated and contained pus and ruptured during removal.

I have never yet seen a case in which the hyperalgesia was present on the left side alone. This hyperalgesia is probably present in the majority of cases of first attacks of appendicitis, but in the gangrenous type of the disease no such tenderness can be discovered when the patient comes under observation and it is probable that this form of the disease does not lead to the conditions which can produce reflected pain and superficial tenderness. If a patient is progressing favourably the hyperalgesia clears as the other symptoms of the disease improve, rarely persisting in the first attack after the sixth or seventh day. In subsequent attacks, however, where a stricture has been produced as the result of the first attack, it may persist much longer and remain after all the other symptoms of the disease have disappeared.

CASE 6.—A girl, aged 14 years, was admitted into the London Hospital on March 8th, 1902, under the care of Mr. T. H. Openshaw. I saw her first 15 days after the onset of her second attack. Her pulse and temperature were normal and she complained of a little pain in the right iliac region. I found cutaneous tenderness in the "appendix triangle," which continued for five days, leaving a small circular area which persisted till the operation a fortnight later. The appendix was found to be very adherent, it was pointing into the pelvis and showed a stricture three-quarters of an inch from the cæcum. The appendix distal to the stricture was dilated. No perforation was present.

FIG. 4.



Showing the rounded patch of cutaneous tenderness in lumbar region in Case 4.

CASE 7.—A woman, aged 28 years, was admitted into the London Hospital in November, 1901, under the care of Mr. F. S. Eve. She had her first attack of appendicitis in 1899, and since that time she had had "many" attacks. During the first one an abscess developed, which was opened. Five weeks before admission she had the last attack and the pain persisted until her admission. I saw her on the following day. Her pulse and temperature were normal. On the right side she had extreme cutaneous tenderness extending in a band from the lumbar spines to the middle line, involving the tenth, eleventh, and twelfth dorsal areas, sending a tongue-shaped process over the gluteal region. At the operation the appendix was found kinked and very adherent. *No perforation was present.*

This hy[illegible] flected pain due to changes [illegible] same way as the reflected [illegible] of the stomach or other parts of the intestinal tract may be associated with superficial tenderness. It may, however, persist after all pain has ceased, especially where the appendix has been inflamed previously. Like all visceral hyperalgesia it is caused by the close association between the nerves which conduct impulses from the appendix and those which [illegible] the skin to the same segments [illegible] When the otherwise painless [illegible] those segments of the central nervous system which are directly connected with the appendix the skin appears to be tender. If a peripheral nerve be inflamed the skin within its distribution may become tender. But the cutaneous tenderness seen in appendicitis is not due to inflammation of the nerve trunks as is sometimes seen in cases of pleurisy (Head[8]). For it may occupy the territory of the posterior primary division as well as that of the anterior division of the nerve and it is inconceivable that the former division could ever be directly affected in appendicitis, and it appears early in the disease while the inflammation is still limited to the appendix. The reason for the anterior area remaining longer than the posterior and often being the only one present seems to be anatomical and to depend on the comparatively greater importance of the anterior primary division of the dorsal nerves.

Cutaneous tenderness does not vary with the position of the appendix and is the same whether the appendix is in its normal position, pointing into the pelvis, on the outer side of the cæcum or curled up behind it. I have seen it typically present in a case of appendicitis where the cæcum was undescended. Here, although the cæcum was in close relationship to the liver, the superficial tenderness occupied the usual band in the eleventh dorsal area. The stimulus necessary to call forth this reflected pain and cutaneous hyperalgesia seems to be that of tension and not of irritation of the nerve endings in the appendix by the inflammation. Head[9] has already shown this to be true for other hollow viscera, particularly the heart. That the stimulus is one of tension is seen by the fact that with perforation or gangrene of the appendix the superficial tenderness completely disappears, even although the perforation be small and the remainder of the appendix not gangrenous. This could not be explained on the supposition that the stimulus is one of irritation, the result of inflammation. The following case is an extremely typical one.

CASE 8.—A man, aged 26 years, was seen by me in the out-patient room at the London Hospital in January, 1902, having been ill for 24 hours with pain in the right iliac fossa. There was no vomiting, the pulse-rate was 80, and the temperature was normal. [illegible] hyperalgesia in the "appendix triangle." [illegible] of Mr. Hutchinson and I [illegible] day. The hyperalgesia had disappeared, his pulse-rate was 130, and vomiting had set in. During the afternoon operation was performed and a recent perforation of the appendix was found.

I have notes of seven other cases in which disappearance of the superficial tenderness was associated with gangrene of the appendix. Observation of this superficial tenderness is important from the point of view of diagnosis, also as an aid in determining when operation should be performed.

It is anatomically possible for other portions of the lower intestinal tract to cause cutaneous hyperalgesia in a similar situation to that caused by the appendix and Head has recorded such cases.[10] I have examined all the cases of abdominal disease which have come under my notice in the surgical wards of the London Hospital and have never met with cutaneous hyperalgesia in other diseases of the intestinal tract from the duodenum downwards.

The cutaneous hyperalgesia met with in renal colic might be mistaken for that seen in appendicitis, but as a rule it is higher, is more widespread, and tends to pass down into the first lumbar area, and where an anterior area only is left it is over the margin of the bony thorax about the situation of the tenth and eleventh ribs. The areas met with occasionally in gall-stones and gastric ulcer are too high to be mistaken for that of appendicitis and in gastric ulcer is often present only on the left side. Inflammation of the uterine appendages may give rise to cutaneous hyperalgesia but its occurrence is rare and it is, as a rule, bilateral.

It is well known that pleurisy at the base may cause pain over the abdomen. Head[11] states that "if a pleurisy is acute the intercostal trunks may become implicated in the inflammation and pain appear over their terminal distribution, exactly as pain appears in the little finger when the ulnar nerve is injured. Thus an acute pleurisy may cause pain over the abdomen or even the iliac fossa of the same side. This is not a visceral reflected pain, for it is only present over that portion of the nerve trunk distal to the inflammatory lesion and is not present over the back. It may occasionally be accompanied by superficial tenderness. But unlike the superficial tenderness that is associated with true visceral reflected pain the tenderness that may accompany a pleurisy is only present in front of (on the distal side of) the patch of pleural inflammation." But in my experience the pain of pleurisy referred to the right iliac fossa is rarely associated with superficial tenderness that could be mistaken for that of appendicitis. Barnard has recently drawn attention to the simulation of appendicitis by "pleuropneumonic disease."[12]

Cutaneous hyperalgesia is sometimes an aid to the diagnosis of appendicitis.

CASE 9.—A girl, aged 17 years, was admitted into the London Hospital in February, 1902, under the care of Mr. Mansell Moullin. The history was vague, consisting of pains in the right side of the abdomen at intervals of about three months, lasting for three or four days. Her pulse and temperature were normal, but cutaneous tenderness was found in the "appendix triangle." No other signs of appendicitis were present. The abdomen was not rigid and no deep tenderness was present. Operation was performed and the appendix was found to be very adherent and sharply bent on itself. On longitudinal section the lumen at the apex of the appendix was seen to be obliterated by fibrous tissue and there was a stricture close to the cæcum.

CASE 10.—A man, aged 45 years, was seen by me in the out-patient department at the London Hospital in January, 1902. He gave a history of a fall six days previously and of pain in the right iliac region since. His pulse and temperature were normal, but there was marked cutaneous tenderness in the "appendix triangle." I admitted him to the hospital and saw him on the next day under the care of Mr. Eve. The hyperalgesia had then gone, his temperature was a little elevated, his pulse-rate had increased, and deep tenderness was present in the right iliac fossa. A few days later an abscess was opened from which a fæcal concretion was taken.

As an aid in determining operation the disappearance of hyperalgesia is of the utmost importance. If well-marked [illegible] large number of cases of appendicitis which come under the care of the surgeon are not seen when hyperalgesia is present. But the absence of hyperalgesia is as important an [illegible] consider absence of hyperalgesia the determining factor in operation. In over 20 cases of early appendicitis without superficial tenderness on which I have operated I have found perforation or gangrene in the appendix without exception.

CASE 11.—A man, aged 38 years, was admitted into the London Hospital on May 30th, 1903. He had been ill three days with pain in the right side of the abdomen which had come on suddenly. He had not vomited. When I saw him his temperature was 103° F., his pulse was 100, and there was complete absence of superficial tenderness with deep tenderness in the usual situation. Half an hour later I [illegible] ce of cutaneous hyper[illegible] the first, but cutaneous hyperalgesia is frequently absent in attacks subsequent to the first without there being gangrene or perforation. (See tables.)

CASE 12.—A girl, aged 16 years, was admitted into the London Hospital on August 8th, 1902, under the care of Mr.

---

[8] Loc. cit.

[9] Loc. cit.

[10] Loc cit.

[11] Quain's Dictionary, third edition, p. 1141.

[12] THE LANCET, August 2nd, 1902, p. 280.

Furnivall. She had had many attacks previously. I saw her 34 hours after the onset of the attack. Her temperature was 100° F. and her pulse-rate was 130. There was no cutaneous hyperalgesia but marked deep tenderness was present in the right iliac region. Her symptoms gradually subsided and her appendix was removed ten days later. It was firmly bound down by adhesions and its distal third was obliterated but there was no perforation. Had this been her first attack immediate operation would have been indicated and a gangrenous appendix would certainly have been found.

Although I consider the disappearance or absence of cutaneous hyperalgesia of great importance in deciding upon operation it is only one of the physical signs and has to be used with the other symptoms and not apart from them. The disappearance of superficial tenderness without coincident amelioration of the symptoms indicates immediate operation, but it does not follow that operation is not urgently necessary while superficial tenderness is present, and I wish to draw special attention to this. Retention of superficial tenderness never contraindicates operation when the general condition of the patient demands it.

CASE 13.—A boy, aged ten years, was admitted into the London Hospital in August, 1902, under the care of Mr. Hutchinson. He had been ill for three days with pain in the right iliac region. His temperature was 102° F. and his pulse was 120; there was cutaneous hyperalgesia present over the "appendix triangle." His condition remaining the same operation was performed on the next day and a localised abscess was opened but no concretion was found. The appendix was not seen.

I have notes of four similar cases. In the majority of cases of abscess of the appendix cutaneous hyperalgesia is absent and a swelling persisting or appearing late in an attack of appendicitis with deep tenderness indicates an abscess.

CASE 14.—A youth, aged 18 years, was admitted into the London Hospital under the care of Mr. Fenwick on March 13th, 1902 He had been ill three days with a first attack of appendicitis. There was marked cutaneous hyperalgesia over the "appendix triangle" but no deep tenderness. His temperature was 101° F., his pulse was 116, and he complained of pain in the right iliac region. All his symptoms gradually improved. Five days after admission his pulse and temperature were normal, he complained of no pain, and cutaneous hyperalgesia was reduced to the small circular spot and persisted for two days. Two days later his temperature was a little raised and a swelling was present in the right iliac fossa, with marked deep tenderness but no cutaneous tenderness. His temperature remained high and two days later an abscess was opened which contained a concretion.

CASE 15.—A man, aged 34 years, was admitted into the London Hospital in June, 1902, under the care of Mr. Fenwick. He was in the fourth day of a first attack of appendicitis. He gave a history of vague pain in the right iliac fossa, of vomiting, and of constipation. His pulse was 96, his temperature was 100° F., and there was marked cutaneous tenderness in the "appendix triangle." This persisted for two days and then gradually disappeared. Two days after its disappearance a swelling was noticed in the right iliac fossa with deep tenderness. On the twelfth day an abscess was opened which contained a concretion.

Out of 51 cases of localised abscess of the appendix that I have examined in five only was superficial tenderness present and these were with two exceptions before the fifth day. In none of these cases with superficial tenderness was any concretion found at the operation or discharged later, and in three the cutaneous tenderness persisted for several days after the operation. The cases of localised abscess of the appendix without cutaneous tenderness all, with one exception, occurred after the seventh day, the majority after the ninth. In many of the cases no pain at all was complained of and the only sign present was a swelling with deep tenderness.

The cases of abscess of the appendix which I have examined fall into two groups: (1) early, with superficial tenderness, due to direct spread of the inflammation from the appendix without naked-eye perforation and always accompanied by grave systemic disturbances; and (2) due to late perforation of the appendix, or perhaps to continuance of the peritoneal inflammation after that in the appendix has ceased. I believe it to be the former, for in a large number of the cases a concretion was found in the abscess cavity and in those cases in which the appendix was removed a perforation was found. In general peritonitis arising from disease of the appendix I have never seen any superficial tenderness present. I am quite prepared, however, to meet with such a case due to spread of the inflammation from the appendix without naked-eye gangrene or perforation.

The observations on which this paper is based are drawn from the notes of 124 cases of appendicitis, and of these 40 showed cutaneous hyperalgesia, in six cases as a complete band, in 28 the "appendix triangle," and six as a circular area. The cases were distributed as shown in the accompanying tables.

TABLE I.—*Giving the Particulars of 124 Cases of Appendicitis.*

First Attack (81 Cases, 19 with Cutaneous Hyperalgesia).

Day of attack.	Cases with cutaneous hyperalgesia.	Condition found at operation.	Cases without cutaneous hyperalgesia.	Condition found at operation.
1st	4	There was no perforation in three cases; perforation was found in one case on disappearance of the tenderness.	*Nil.*	—
2nd	2	No perforation.	7	Perforation.
3rd	7	No perforation in three cases; operation at disappearance of the tenderness showed perforation in two; and abscess was found in two.	10	"
4th	1	An abscess developed after disappearance of the hyperalgesia.	1	"
5th	2	Operation was performed in one case after the attack, no perforation being found; in the other operation was performed immediately and an abscess found.	4	"
6th	1	After disappearance abscess developed.	3	Perforation in one case. Two were operated upon after the attack. No perforation was present.
7th	0	—	8	Abscess in seven cases; in four of these the appendix was found to be perforated. Operation was performed after the attack in one case; no perforation was present.
8th	0	—	6	Abscesses.
9th	0	—	6	Abscesses were present in five cases. One was operated on later; no perforation was found.
10th	1	Operation was performed at once; abscess supervened.	5	Abscesses.
11th	1	"	1	An abscess was opened. The appendix was removed, a perforation being present.
12th	0	—	3	Abscesses.
14th	0	—	3	"
16th	0	—	1	Abscess.
20th	0	—	1	End of the attack. The appendix was removed later. No perforation occurred.
21st	0	—	3	Abscesses.

Second Attack (18 Cases, Nine with Cutaneous Hyperalgesia).

2nd	0	—	3	No perforation in one case, perforation in one case, and abscess with concretion in one case.
3rd	1	No perforation was present.	1	Perforation.
4th	1	,,	0	—
5th	1	Abscess developed.	1	Abscess.
8th	1	Operation was performed in a quiet interval. No perforation was present.	0	—
9th	0	—	1	Abscess.
10th	0	—	1	,,
11th	0	—	1	No perforation was present.
12th	1	No perforation was present.	0	—
14th	2	,,	0	—
15th	1	,,	0	—
21st	1	,,	1	Abscess.

Third Attack (Six Cases, Three with Cutaneous Hyperalgesia).

1st	1	No perforation was present.	0	—
9th	0	—	1	Abscess.
12th	0	—	1	Perforation into the meso appendix.
14th	1	No perforation.	1	Abscess.
21st	1	,,	0	—

More than Three Attacks (19 Cases, Nine with Cutaneous Hyperalgesia).

1st	2	No perforation was present.	2	No perforation was present.
3rd	1	,,	1	,,
4th	1	,,	2	,,
5th	0	—	1	Abscess
6th	0	—	1	,,
7th	0	—	2	No perforation was present.
8th	2	No perforation was present.	0	—
14th	1	,,	0	—
20th	0	—	1	No perforation was present
5th week.	1	No perforation was present.	0	—
Chronic	1	,,	0	—

In the first attack of appendicitis before the sixth day there were 38 cases; 16 of these showed cutaneous hyperalgesia.

TABLE II.

First Attack.

With cutaneous hyperalgesia.	Remarks	Without cutaneous hyperalgesia	Remarks
Before the sixth day, 16	No perforation was present at the operation after the attack in nine cases. Operation was performed at the disappearance of the hyperalgesia in three cases, and perforation was found. Immediate operation was performed in three cases, and an abscess opened. Abscess developed in three cases after the disappearance of the superficial tenderness.	22	*Local or general gangrene of the appendix was present.*
After the fifth day, 3	Immediate operation was performed in two cases, abscess being found; no concretion was present or discharged later and hyperalgesia persisted after the operation. Abscess developed in one case after the disappearance of the hyperalgesia.	40	Abscesses were present in 36 cases and in four perforation was not found.

Second Attack.

Before the sixth day, 3	No perforation was found in two cases and abscess developed in one case on the disappearance of the tenderness.	5	No perforation was found in one case. Local or general gangrene was present in two cases and in two cases an abscess was opened later.
After the fifth day, 6	No perforation was found.	3	Abscess was present in one case and perforation was not present in two cases.

Third Attack.

Before the sixth day, 1	No perforation.	0	—
After the fifth day, 2	,, ,,	3	Abscess was found.

More than Three Attacks.

Before the sixth day, 4	No perforation.	6	No perforation was present in five cases and abscess in one case.
After the fifth day, 5	,, ,,	5	No perforation was present in four cases and abscess in one case.

Conclusions.—1. Cutaneous hyperalgesia is probably present at some time during all first attacks of appendicitis, except perhaps in the fulminating type, and depends upon tension within the appendix. 2. It may be absent in attacks after the first, if the first attack was of sufficient severity to destroy nerve tissue in the wall of the appendix. 3. When present in attacks subsequent to the first it often persists long after all other signs of the disease have gone, owing to the tension within the appendix being kept up by the presence of a stricture. 4. It gradually disappears during convalescence as the other signs of the disease clear up. 5 Disappearance of cutaneous hyperalgesia without improvement in the general condition of the patient is a sign of perforation or gangrene of the appendix and should be a signal for immediate operation. 6. The presence of cutaneous hyperalgesia is no contra-indication to operation Abscesses may form and general peritonitis may develop while it is present. 7. Its absence, on the other hand, is of great importance. Absence of cutaneous hyperalgesia, the patient coming under observation early in the first attack of appendicitis, is a sign of gangrene of the appendix unless the case is obviously a mild one and the patient is rapidly getting well. 8. Cutaneous hyperalgesia is, as a rule, absent in cases of abscess of the appendix. 9 The age of the patient and the position of the appendix have no influence upon the cutaneous hyperalgesia. 10. It is occasionally of use as an aid to the diagnosis of appendicitis.

I wish to thank my colleagues at the
permission so readily given to quote their

Devonshire-street, W.

DEFECTS IN THE AU

BY FRANK E. TYLEC

ANÆSTHETIST TO THE ANCOATS
MANCHESTER

THE two following cases,
of the Manchester Royal I
Graham Steell, to whom I
mission to publish them,
worthy of note. Both
mitral stenosis and this
where, however,
were revealed which
guishing symptoms.

CASE 1.—The
years. She stated
of five years. She
hood. For the last
pital. She comp
some ascites, and

right knee. When admitted into hospital on Jan. 20th, 1903, the heart on percussion was a good deal enlarged; on auscultation systolic and diastolic murmurs were heard at the apex. The diastolic murmur was localised; the systolic murmur was conducted to the anterior axillary line, while the first sound was heard at the scapular angle. At the pulmonary area there was a localised, harsh systolic murmur which was best heard at the inspiratory acme (? exocardial). The liver was much enlarged and tender and its surface was granular, there being a distinct hepatic pulsation. The patient had no clubbing of the fingers and only some "back-pressure" cyanosis, as is usual in the later stages of mitral disease. The pulse was regular, of good tension, ranging from 70 to 80, and occasionally bigeminal. She remained in much the same state and died quite suddenly on May 11th. At the post-mortem examination the hypertrophied and dilated right and left auricles were found to communicate by a patent, almost round, foramen ovale two inches in diameter. The mitral valve showed old fibrous stenosis, barely admitting two finger-tips, while the tricuspid valve admitted seven finger-tips. The left ventricle was somewhat hypertrophied. The aortic and pulmonary valves were normal. The heart weighed 22 ounces; its consistency was flabby and its apex was rounded.

CASE 2.—The patient was a married woman, aged 39 years. She complained of dyspnœa, general œdema, and palpitation. There was no previous rheumatic history, but she had had "twitchings" during her last pregnancy a year previously. There had been palpitation with cardiac irregularity for the last 15 years, but worse during the last two years—i.e., since her second confinement. She had been admitted to hospital twice this year, the last time being on April 30th, when she had rheumatism in the legs and arms, well-marked dyspnœa, and præcordial pain. The cardiac dulness was much increased from side to side. At the apex a presystolic murmur was heard with an accentuated first sound and a feeble second sound. The liver was enlarged and tender and it pulsated distinctly. There was some œdema in the lumbar region. The pulse ranged from 80 to 100; it was of low tension, feeble, and regular. In a day or two she developed signs and symptoms of pericarditis with effusion, the upward dulness reaching the second rib. She never had any clubbing of the fingers and (except very slight of the lips) never had any cyanosis. The patient slowly got weaker and died on May 17th. At the post-mortem examination the inter-auricular septum was found to be absent except a remnant which remained as a pillar on the anterior wall. It is interesting to note here that there was a small congenital perforation of the nasal septum just above the columella. The heart, when removed with the pericardium and large vessels, weighed 37 ounces. The apex was rounded and the consistency was fairly good. The right auricle had hypertrophied walls and was full of ante-mortem clot continuous with that in the left auricle, which was enlarged and its walls were thickened. The tricuspid valve admitted five finger-tips. The pulmonary valve was wide and the aorta was distinctly narrower than the pulmonary artery. The right ventricle was much hypertrophied and dilated and contained ante-mortem clot. The mitral valve showed old fibrous stenosis. There was a sero-fibrinous pericarditis, chiefly recent, with a good deal of effusion.

Clinically these two cases were typical ones of mitral stenosis, in the second case with pericarditis added later. The post-mortem surprise in each case shows how long life may be prolonged in this variety of congenital heart defect, the ages of these patients being 43 and 39 years respectively; while in neither case did any symptoms suggest the existence of the defects. Here, then, are two cases of auricular septal defect, both uncomplicated by pulmonary stenosis, and both allowing, though not compelling, free mixture of venous with arterial blood, and in neither case did typical cyanosis and clubbing occur. Dr. T. Wardrop Griffith has lately discussed[1] the cause of cyanosis associated with congenital heart defects. There is some causative factor of cyanosis lacking in both these cases: it appears to be pulmonary stenosis, but if so, Variot's case of stenosis without cyanosis remains inexplicable unless, as Dr. Griffith says, possibly the bronchial arteries were much enlarged and mal-aeration thus prevented. In both the present cases the ductus arteriosus was impervious, while in Case 2 the aorta was somewhat narrow relatively to the pulmonary artery, so that in this case some blood probably passed back to the right auricle and from the right ventricle to the lungs a second time. The starting-point in the cause of cyanosis in congenital heart disease seems in all cases to be pulmonary stenosis, while consequent on this follow, where septal defect is associated, compulsory mixture of venous with arterial blood, mal-aeration, and also erythrocytosis, due, just as in dwellers in high altitudes, to a deficiency of oxygen. If enlargement of the bronchial arteries prevents mal-aeration the chain is probably broken.

Macclesfield.

---

[1] Medical Chronicle, March, 1903.

TUBERCULOSIS AND CANCER IN NEW ZEALAND.[1]

BY W. J. BARCLAY, M.D., F.R.C.S. EDIN., D.P.H.

THE following statistical study attempts to demonstrate several interesting facts. To anticipate, the chief conclusion is that whilst the death-rate from tuberculosis is much less in New Zealand than in England and Wales the death-rate from cancer is practically the same in both countries.

A.—TUBERCULOSIS.

TABLE I.—*Showing the Death-rates per 10,000 Persons of all Tuberculous Diseases and Pulmonary Tuberculosis respectively in New Zealand and in England and Wales.**

Year.	All tuberculous diseases.		Pulmonary tuberculosis.	
	New Zealand.	England and Wales.	New Zealand.	England and Wales.
1891	10·53	23 00	7·86	15 99
1892	10·90	21·35	8·16	14 67
1893	11·02	21 40	8 24	14 65
1894	11·07	19·67	8·48	13·31
1895	10·99	20 55	7 99	13 93
1896	9 62	18·83	7·40	13 01
1897	10·57	19 22	8·26	13·35
1898	10·44	19 07	8 11	13·10
1899	10 60	19 01	7 91	13 29
1900	9 85	18·99	7·56	13 32

* The English rates are those given by the Registrar-General; the New Zealand rates I have calculated from the official death returns.

For convenience the figures in Table I. have been summarised, with the addition of separate death-rates from pulmonary tuberculosis for males and for females (see Table II.).

TABLE II.—*Showing the Mean Annual Death-rates per 10,000 Persons of all Tuberculous Diseases and Pulmonary Tuberculosis respectively in New Zealand and in England and Wales during the Ten Years 1891–1900.*

All tuberculous diseases.		Pulmonary tuberculosis.					
Persons.		Persons.		Males.		Females.	
New Zealand	England and Wales.	New Zealand.	England and Wales.	New Zealand.	England and Wales.	New Zealand.	England and Wales.
10·55	20·10	7·99	13·91	8·13	15·79	7·83	12·15

From Tables I. and II. it is evident (1) that the death-rate from tuberculous diseases is much less in New Zealand than in England and Wales; (2) that the death-rate from pulmonary tuberculosis is higher for males than for females in both countries; and (3) that the death-rate from tuberculous diseases is decreasing. Let us briefly consider each of these conclusions.

1. *Lowness of the death rate from tuberculosis in New Zealand.*—The New Zealand rate is only about one-half of

---

[1] Abstracted from a thesis submitted for the degree of Doctor of Medicine of the University of Edinburgh.

the English rate. This, too, in spite of the fact that pulmonary consumption is a disease especially of young adults, of whom the New Zealand population contains an excess; in spite, also, of the fact that there is in New Zealand a relative deficiency of females, for whom the death-rate from pulmonary consumption is lower than for males; and in spite, further, of the fact that a number of consumptive patients are continually arriving in New Zealand, attracted thither by the hope of cure. For each of these three reasons the death-rate from tuberculosis in New Zealand is abnormally raised, as compared with the rate in England and Wales. What, then, is the cause of this extremely low death-rate from tuberculosis in New Zealand? There are several causes, of which the most important are that in New Zealand the climate is temperate and equable, that a great proportion of the population follow outdoor occupations, that the ill effects of factory life and of unhealthy trades are seldom seen, and that the average inhabitant enjoys good and abundant food with suitable clothing and house accommodation.

2 *The death-rate from phthisis is higher for males than for females both in New Zealand and in England.*—The reason of this is usually supposed to be that a greater number of males are working under unhealthy conditions—i e, in factories, and especially those where much dust is produced It is an additional proof of the accuracy of this explanation that in New Zealand where factory life is less common the excess of the male death-rate from tuberculosis over the female rate is much less marked than in England and Wales (see Table II.).

3. *The death-rate from tuberculosis is decreasing in New Zealand as in England and in most other countries.*—Two reasons for this may be alleged: first, the improved physical condition of the people from better and cheaper food and clothing; and second, the lessened chance of infection owing to the fact that tuberculosis in particular is more and more recognised as an infectious disease spread from one patient to another unless due precautions are taken As the importance of preventing such infection is becoming more widely known it may be expected that in all countries the death-rate will continue to fall and that even the present extremely low death-rate from tuberculosis in New Zealand will be still further reduced.

B.—CANCER.

TABLE III.—*Showing the Death-rates from Cancer per 10,000 of the Population in New Zealand and in England and Wales respectively from 1886 to 1900.*

Year.	New Zealand.			England and Wales.		
	Persons.	Males.	Females	Persons	Males	Females.
1886	3 63	3 69	3 67	5 90	4 31	7 41
1890	—	4 72	4 79	6 76	5 12	8 30
1891	4 68	4 60	4 77	6 92	5 17	8 55
1892	4 73	5 07	4 44	6 89	5 28	8 41
1893	5 02	5 35	4 64	7 09	5 48	8 61
1894	6 01	6 65	5 27	7 11	5 53	8 58
1895	5 53	5 67	5 37	7 52	5 84	9 10
1896	5 50	5 49	5 51	7 60	6 15	8·96
1897	5 47	5 51	5 42	7 83	6 34	9 23
1898	6 40	6·77	5 97	7 98	6 51	9·37
1899	6·24	6 85	5 55	8 25	6 70	9 70
1900	5 63	6 13	5 09	8 28	6 72	9 75

From Table III., showing the crude cancer death-rates, it appears (1) that the registered death-rate from cancer (for persons, for males, and for females) is lower in New Zealand than in England; (2) that the registered death rate from cancer (for persons, for males, and for females) is increasing in both countries; and (3) that the registered death-rate from cancer in New Zealand is higher for males than for females, whereas in England the female rate is the higher.

Corrected cancer death-rates.—A crude cancer death-rate is, however, extremely fallacious, for cancer is undoubtedly a disease which affects most heavily those past middle age and especially women. And as the New Zealand population shows a relative deficiency of adults, and especially of women, past middle life, this will of itself give to the colony death-rates from cancer which are too low when compared with those of England and Wales. Correction for age and sex distribution of the population is therefore urgently needed. This may be accomplished either by giving the death-rates from cancer at different age periods for either sex or by calculating a single corrected cancer death-rate.

1.—*Cancer death-rates at different age periods:*—

TABLE IV.—*Showing the Annual Death rates from Cancer per 10,000 Persons in New Zealand and in England and Wales.**

Males.

Age.	New Zealand.			England and Wales.		
	1880–84	1890–94	1896	1881–90	1890–99	1900
All ages	—	—	5·49	4 30	5 81	6 72
Years						
0–5	—	—	0 471	0 21	0 31	0 31
5–15	—	—	0 230	—	—	—
15–25	—	—	0 267	—	—	—
25–35	0·714	0 727	0 367	0 79	1 02	1·01
35–45	2 648	3 550	2 823	2 97	3 90	4 18
45–55	10 159	12 875	15 136	9 98	12·95	14 83
55–65	19 762	31·328	30 296	22 99	31 30	37·96
65–75	31 680	54 439	47 530	37 42	50 83	57 35
75+	47 486	55 844	49 558	39 14	56 56	67 15

Females.

Age.	New Zealand.			England and Wales.		
	1880–84	1890–94	1896	1881–90	1890–99	1900
All ages	—	—	5 51	7 39	8 88	9 75
0–5	—	—	—	0 19	0 26	0 29
5–15	—	—	0 117	—	—	—
15–25	—	—	0 133	—	—	—
25–35	1·525	1·579	1 783	1·72	1·79	1·97
35–45	6 952	7 533	6 983	8 52	9 18	9 42
45–55	18 079	18 098	18 558	20 42	23 28	24 33
55–65	28 445	36 036	44 369	33 68	40·94	45 61
65–75	35 782	45·998	53 459	45 06	56 43	62 54
75+	44 690	46 051	30 877	45 78	62 83	74·63

Table IV. gives results which are free from fallacies of age and sex distribution of the population, but it is convenient to express the same correction in the form of a single rate.

2 *Single corrected cancer death rate*—This I have calculated for New Zealand during the year 1896, a census year. The population was adjusted in age and sex distribution to correspond with the composition of the English standard million for the period 1881–90; from the number thus obtained in each age group and the observed cancer death-rates for the same age groups we can estimate the number of deaths from cancer that would have occurred in New Zealand if its population had been of the same composition as the English standard million The results obtained are given in Table V.:—

TABLE V.—*Showing the Death rates from Cancer per 10,000 Persons in New Zealand and in England and Wales in 1896.*

New Zealand.						England and Wales.		
Crude cancer death-rates			Corrected cancer death-rates.			Cancer death rates		
Persons	Males.	Females	Persons.	Males.	Females.	Persons.	Males.	Females
5 50	5 49	5 51	6·67	5 54	7 74	7·60	6 15	8·96

---

* The rates for New Zealand in the years 1880–84 and 1890–94 are as
given by Mr G Leslie, ass
Life Insurance Department
Zealand, publishe
and Finance, in
Zealand in 1896 I
General for New
of the Registrar General.

From the corrected rates given in Table V. the following conclusions are derived: (1) The cancer death-rate in New Zealand is really higher for females than for males. This is important as correcting the fallacy of the crude rates (see Table III.) and bringing the New Zealand statistics into agreement with those of other countries. (2) The cancer death-rate is slightly lower in New Zealand than in England and Wales. There is, however, no very great difference and probably there will in the future be less still as the certification of deaths from cancer is improved. (3) The registered cancer death-rate is increasing in New Zealand as in England. Unfortunately, however, the New Zealand statistics do not afford any assistance in determining whether cancer is truly increasing or whether the apparent increase is due merely to improved diagnosis and registration.

Summary.—1. Tuberculosis in New Zealand gives a death-rate of only one-half of the English rate. This appears to be due to the relative absence in New Zealand of conditions which favour the growth and spread of this disease. 2. The death-rate of cancer, on the other hand, in New Zealand is practically equal to that in England. Hence it is probable that the conditions favourable to this disease are present to an equal extent in the two countries.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TAPEWORM AS A CAUSE OF CHOREA.

By JOSEPH A. W. PEREIRA, L.R.C.P. LOND., M.R.C.S. ENG.

IN his "Principles and Practice of Medicine" Professor W. Osler says: "Reflex irritation was believed to play an important rôle in the disease (i.e., chorea), particularly the presence of worms or genital irritation, but I have met with no instance in which the disease could be attributed to either of these causes." He also says: "Various nervous phenomena, such as chorea, convulsions, or epilepsy, are believed to be caused by the parasites (tapeworms). Such effects, however, are very rare."

These words of Professor Osler are my excuse for publishing a case which came under my care two months ago and in which a girl, aged six years, suffering from tapeworm became the subject of an attack of chorea. The child was passing segments of the worm for two or three weeks when the first manifestations of chorea became evident. When I saw the child she was in the second grade, or the severe form of the disease, in which the movements were general and she could not talk. There was never any suspicion of rheumatism in the case and her heart remained normal throughout. A dose of filix mas dislodged the parasite and in a month's time the child was practically well. The cestode was, in my opinion, the direct exciting cause of the chorea.

Both Dr. F. T. Roberts and Dr. A. H. Carter of Birmingham mention the irritation of worms as exciting causes of chorea, whilst Dr. F. Taylor and the late Dr. Edward Ellis[1] are silent on the point. I believe that the occurrence of tapeworms in children under six years of age is rare, an opinion which Dr. Ellis likewise expressed in his book. Professor Osler, however, says it is not uncommon.

Exeter.

A NOTE ON FOUR CASES OF BLACKWATER FEVER.

By J. CLEASBY TAYLOR, M.D. EDIN., M.R.C.S. ENG.,
HONORARY PHYSICIAN, SEAMEN'S HOSPITAL, LAS PALMAS.

DURING the past winter four cases of this fever came under my notice. There are three points to which I wish to draw attention. 1. All these cases developed on board ship homeward bound from the west coast of Africa, presumably away from any direct or recent infection. Only one of the cases had suffered from a previous attack. 2. In all the cases there had been a slight chill (malarial), for which one gramme of quinine had been taken and within a few hours the symptoms developed. 3. The last point is the satisfactory use of boric acid, one gramme of which in hot water was given every two or three hours according to the severity of the attack. If there is vomiting it could be given by rectal or subcutaneous injection.

The following is an abstract of the clinical record of the last case. The patient, who was a French explorer, developed the characteristic symptoms at 4 A.M. On the first day, at 8.30 A.M., his temperature was 103·8° F. He had an icteric tinge and his urine looked like blood. At 1 P.M. his temperature was 103·8°. At 5 P.M. his temperature was 101·2°; the icteric tinge was less and the urine was clearer. At 9 P.M. his temperature was 101°. On that day he had five one-gramme (15 grain) doses of boric acid—namely, at 10 A.M., 1 P.M., 4 P.M., 7 P.M., and 11 P.M. On the second day at 4 A.M. his temperature was 99°. At 8 A.M. it was 99°; the icteric tinge was now much less and the urine was of a brownish colour. At 1 P.M. his temperature was 98·8°. At 8 P.M. it was 98·6° and his urine was then clear. On this day he had three one-gramme doses of boric acid—namely, at 4 A.M., 8 A.M., and 1 P.M. After this date the patient made a satisfactory and rapid recovery. In none of the cases was any albumin found in the urine during convalescence.

Orilla del Marc, Las Palmas, Grand Canary.

PURPURA (PELIOSIS) RHEUMATICA WITH STERCORACEOUS VOMITING.

By JOSEPH EDWARD JUDSON, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE SURGEON, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL, ASHTON-UNDER-LYNE.

THE patient was a male, aged 17 years, and was admitted to the District Infirmary, Ashton-under-Lyne, as a supposed case of intestinal obstruction on May 3rd, 1903. He had been ill and under medical treatment for ten days with rheumatism of a subacute character and had been having only a milk diet. On the evening of May 1st he began to vomit and on the night of the 2nd the vomited matter, which had been of a bilious nature during the day, was from the description of a fæcal character.

On admission he was found to be very collapsed with a quick, thready pulse. There was no distension whatever of the abdomen, neither was there any hernia or any tenderness over the appendicular region; the liver dulness was present and there was no accumulation of fæces in the rectum. He complained of pain over the epigastric and umbilical regions. There was a marked purpuric rash over both ankles and the outer sides of the legs and also on the forearms. The hypodermic injections of strychnine and digitalis, which were given for the collapse, were followed by a marked subcutaneous extravasation of blood. He was given sips of hot water and small quantities of milk, but vomited immediately afterwards. On the 4th, at 12.45 A.M., the vomit was large and distinctly fæcal. A glycerine enema was given at 2.30 P.M. with a slight result. At 4.30 P.M. he again vomited, but this time it was of a bilious character. Feeding by the mouth was stopped and no more vomiting occurred; rectal feeding, however, was continued for 48 hours. The question of laparotomy was discussed but the operation was not considered justifiable. The symptoms subsided, the purpura disappeared, and the patient made a good recovery, leaving the hospital on June 23rd. I have seen him several times since and he appears to be perfectly well. There is no evidence of hysteria.

Ashton-under-Lyne.

ROYAL CITY OF DUBLIN HOSPITAL.—At the monthly meeting of the board of the Royal City of Dublin Hospital, held on Sept. 11th, a letter was read from Lord Plunket inclosing His Majesty's reply to the address presented on his recent visit to Ireland. The directors passed a vote of sympathy with the relatives of the late Mr. Henry Gray Croly, who had served the hospital for 40 years, and accepted the resignation with regret of Sir George F. Duffey, owing to ill-health, and placed on record its appreciation of his skilful services as visiting physician to the hospital during 21 years.

---

[1] A Practical Manual of the Diseases of Children. London: J. and A. Churchill.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

TWO CASES OF STRANGULATED FEMORAL HERNIA, WITH A COMPARISON OF THE METHODS OF DEALING WITH DAMAGED INTESTINE.

(Under the care of Mr. C. WHIPPLE.)

FOR the notes of the cases we are indebted to Mr. H. W. Webber, assistant surgeon.

CASE 1.—A woman, aged 68 years, was admitted into the South Devon and East Cornwall Hospital on June 6th, 1903, for strangulated femoral hernia on the right side. The hernia had been present for some years. She had been vomiting more or less for four days and on admission had stercoraceous vomiting. No attempt at taxis had been made. The patient looked ill but her pulse was good. An hour after admission chloroform and ether (Tait's mixture) was administered and the usual operation for femoral hernia was performed. The sac contained some foul fluid of rather urinous odour but it was proved that no communication with the bladder existed. The knuckle of small intestine involved was of the consistence of wet blotting paper and evidently in a hopeless state. The constricting band having been divided healthy bowel was drawn down and the healthy area round the damaged part was stitched to the wound. The gangrenous patch was then incised and some foul dark green fluid was evacuated. No tube was used for insertion into the proximal end of the bowel as a Paul's tube had been tried but did not seem to act well. For several days the bowel drained freely, the fæcal matter being fluid and greenish in colour, but the patient soon showed signs of inanition, losing flesh, and having a weak pulse and subnormal temperature. The wound also and surrounding skin were in a foul and irritated condition from the continual overflow of intestinal contents. Accordingly on the 16th, the wound having been rendered as aseptic as possible and the open ends of bowel plugged with swabs tied to pieces of silk, about an inch of bowel was resected from each of the ends and these were united with a Murphy's button. The reunited bowel was left *in situ*, as one feared to push it back into the peritoneal cavity in view of the doubtful condition of the wound. Two days later the junction gave way and the button was removed, leaving things as they were before the second operation. On the 23rd the following operation, suggested by Mr. Whipple, was performed. Catheters (Jaques's) were introduced into each of the ends of the bowel at the artificial anus to act as guides in finding the bowel inside the abdomen. The wound was then carefully covered up and the abdomen was opened through the right rectus muscle vertically above the wound. The portions of bowel involved having been identified by the catheters both portions were drawn up into the new wound and divided between clamps, leaving two proximal ends free and two distal portions about two inches in length fixed at the artificial anus. The proximal ends were united by a Murphy's button; the distal ends were sewn up and left *in situ*. The abdomen was then closed. The patient never rallied from the operation and died on the next day.

CASE 2.—A woman, aged 64 years, was admitted into the South Devon and East Cornwall Hospital on June 28th, 1903, with a history of four days' strangulation of a right femoral hernia for which she had worn a truss for several years. No attempts at reduction by taxis had been made. On admission she was found to have a very fair pulse, her face was flushed and somewhat dusky in aspect, and the tongue was coated but not dry. The abdomen was distended with visible coils of intestine which showed peristaltic movement. The vomit was fæcal. The patient was prepared for immediate operation and Tait's mixture was administered. The usual incisions exposed a sloughy sac which contained much blood-stained fluid, a large amount of gangrenous omentum, and a knuckle of hopelessly damaged bowel which was tightly nipped. The constriction having been divided the omentum involved was ligatured and cut away. The sac was then washed out with saline solution and the bowel was drawn well down into the wound until healthy surface was exposed. At a point three inches on each side of the damaged area Doyen's clamps covered with drainage tubing were applied and resection was performed, junction being rapidly effected with a Murphy's button, aided by a few Lembert sutures. The wound was partly closed, a gauze drain being left in the sac cavity. On the 30th the bowels were well opened with a turpentine enema. All sickness had stopped, the pulse and general condition of the patient being excellent. The after-history of the case was of steady progress towards recovery. The button [illegible]

Rema[illegible] Mr. A. E. J. Barker'[illegible] LANCET[1] on this subject the above reports are of interest. I am indebted to Mr. Whipple for kind permission to record these cases, of which I had charge, and to the house surgeon, Dr. H. S. Gabb, for the notes and for his careful attention to the patients. The result of the second case, taken in conjunction with Mr. Barker's paper, would seem to indicate that immediate resection of the damaged bowel is the preferable course to pursue in similar circumstances.

Reviews and Notices of Books.

A Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M.A., M.D. Glasg., Fellow of, and Examiner to, the Faculty of Physicians and Surgeons, Glasgow; Physician to Glasgow Royal Infirmary; Professor of Medicine in St. Mungo's College. University Series. London: Baillière, Tindall, and Cox. 1903. Pp. 901. Price 15*s*.

WHEN a student has passed the earlier professional examinations in anatomy and physiology and is about to commence work in the wards and out-patient rooms, one of the first questions he naturally asks is as to which text-book on medicine he should select to help him in his clinical studies. It is difficult to give him an answer as there are many excellent works which a student could read with benefit, as we point out every year in our Students' Number. Dr. Monro states in his preface, and quite correctly so, that some of these are too large for the average student to master, whilst some are too small to contain the requisite amount of information. It has therefore been his aim to produce a manual which should hit the happy mean. After a careful perusal of his work we think that he has succeeded in the task; there are a few faults, but taking the volume as a whole we can cordially recommend it as a trustworthy text-book.

The first section deals with the specific infectious diseases. After a few general remarks on "fever" and on some theoretical considerations in regard to infection and immunity, each disease is considered separately. The etiology, morbid anatomy, symptoms, complications, sequelæ, diagnosis, prognosis, and treatment are carefully discussed. The incubation period is also given but no definite time is laid down as to the quarantine which should be imposed on convalescent patients. Authorities differ, no doubt, on this point, but the question is one which is of great moment to the friends of the patients, and in a future edition we would venture to suggest that Dr. Monro should state the limits during which it is generally considered that the patient may convey the disease to others. It is strange that in most text-books this question is avoided. In accordance with modern views lobar pneumonia and rheumatic fever are both included in this section as well as tuberculosis. The last is treated not only as a general infection, but as affecting the various systems and organs of the body; pulmonary tuberculosis, therefore, instead of being described amongst diseases of the lungs, is discussed in this section under the heading of "Tuberculosis of the Respiratory System." We consider this classification a good one and preferable to the one usually adopted. The paragraphs devoted to the treatment of the various fevers bear evidences of being carefully compiled and the results of most modern researches are incorporated. In describing the treatment of lobar pneumonia it is admitted that anti-pneumococcic serum (20 cubic centimetres injected subcutaneously twice a day) has been recommended by some authorities but has not yet been generally accepted as beneficial. In discussing the therapeutics of yellow fever the influence of the mosquito is recognised and it is shown that there is good reason to hope that by exterminating this gnat in any given area yellow fever may in time be abolished. Dr. Monro has made this section as complete as possible, for he has included descriptions of posterior basic meningitis, glandular fever, Mediterranean fever, Weil's disease, beri-beri, verruga, frambœsia, and actinomycosis. Dogmatism to a certain extent is desirable in a work of this kind but occasionally Dr. Monro rather oversteps prudence. For instance, in discussing the diagnosis of enteric fever, he says: "In this country a fever which continues for a week without a characteristic rash, and without local inflammation to account for it, is either enteric or tuberculosis." This statement is misleading. The temperature in influenza may remain raised considerably longer than a week without a rash and without "local inflammation." In children, too, a "febricula" may be met with lasting a considerable period, and there are other conditions which might be mentioned which do not accord with this postulate.

---

[1] THE LANCET, June 6th, 1903, p. 1576.

A section is devoted to a consideration of the diseases of the blood and ductless glands. Within recent years a large amount of knowledge has gradually been accumulating in regard to morbid conditions of the blood. The etiology and pathology of some of these diseases are still doubtful, and Dr. Monro has wisely refrained from discussing at length the merits of the many theoretical points which have been raised, but has contented himself with short statements of the views of various observers. The symptoms, diagnosis, and treatment, however, are given at a length quite sufficient for the requirements of students. In the section on diseases of the respiratory system the most interesting remarks are those on the etiology of pleurisy. Dr. Monro does not appear to take such a gloomy view of the nature of "simple acute pleurisies" as do some authorities. It has been asserted that however rapidly, and apparently completely, the victims of such pleurisies recover, statistics prove that the majority of them die before three years are over with undoubted tuberculous disease of the lungs and other organs. Dr. Monro believes this statement to be exaggerated and adds that he is of opinion that if the conditions of life are favourable scarcely any form of tuberculosis is so curable as that which is limited to the pleura.

Diseases of the digestive system are well described. We particularly noted the remarks on the etiology and diagnosis of intestinal obstruction; the classification of the causes of this condition is a good one and useful when applied to actual clinical work. A large amount of information is to be gained by a study of the section devoted to diseases of the nervous system. The functional and nutritional affections are especially well described. The treatment which may be adopted in the various maladies is plainly set forth and the rarer as well as the more common diseases receive due notice. The remaining sections deal with diseases of the muscles, diseases of the skin, intoxications, and diseases due to animal parasites.

This work, although primarily intended for students, will also be of service to practitioners. The whole book is so simply arranged and theoretical considerations are reduced to such a small compass that information on practical work is easily obtained.

LIBRARY TABLE.

Introduction to the Study of Malarial Diseases. By Dr. REINHOLD RUGE of the Imperial German Navy. Translated by P. EDGAR, M.B., C.M. Edin.; District Surgeon TELUK ANSON, F.M.S.; and M. EDEN PAUL, M.D. Brux. London: Rebman Limited. 1903. Pp. 138. Price 10*s.* 6*d.*—This little book does not offer much that is new to the student of malaria. The intention of the author was to provide the ship's surgeon and the colonial surgeon, often thrown entirely on their own resources, with a book in which they could find advice, without the advice occupying too great a space. The methods of investigation and the difficulties and errors that may arise during the search for malarial parasites are described with completeness; other errors of observation and the means of avoiding them are also discussed. The book is divided into nine sections, which deal respectively with the Etiology, Epidemiology, Symptomology, Pathogenesis, Pathological Anatomy, Diagnosis and Differential Diagnosis, Prognosis, Therapeutics, and Prophylaxis. The text is illustrated with many woodcuts and a series of 21 temperature charts of tropical fevers prevalent in different places. The clinical pictures of the diseases are good. In forming a prognosis stress is laid on the information derived from the examination of the blood. We note that the dose of quinine recommended in ordinary attacks is larger than that advocated by Sir Patrick Manson and used by him in his practice. The section on prophylaxis, individual and general, is a sound one. The appendix contains a useful list of instruments and objects necessary for microscopical study and two plates showing the malarial parasites and the different kinds of mosquitoes; the plates were prepared from the author's preparations, were photographed by Professor Zettnow, and are reproduced according to the method of the new Photographic Society in Steglitz, near Berlin. The book should facilitate the recognition, management, and prevention of malarial fevers, and might prove useful to a larger section of the profession than that for which the author originally intended it.

International Clinics: a Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, &c. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U.S.A. Volume II., Thirteenth Series. London: J. P. Lippincott Company. 1903. Pp. 311.—In the production of these volumes Dr. Kelly has 11 collaborators and other regular correspondents in many of the most important centres. The series contains papers on the Summer Diarrhœas of Children, by Dr. H. W. Conn, Dr. Alfred Hand, Dr. A. C. Cotton, Dr. T. S. Westcott, Dr. Matthias Nicoll, and Dr. A. B. Marfan; and on Diseases of the Pancreas, by Dr. E. L. Opie and Dr. G. P. Muller. Under the heading of Treatment Dr. L. Levi writes on Trunecek's Serum in Arteriosclerosis; Dr. J. M. Gaston on Practical Notes on the Prophylactic and Curative Treatment of Influenza, Malaria, Erysipelas, and Ozæna; Dr. C. Bouchard on Local Treatment; and Dr. J. M. Taylor on the Rest Treatment. In the section on Medicine there are four papers on the Etiology, Prevention, and Treatment of a Common Cold, by Dr. A. Haig; the Peripheral Causes of Heart Disease, by Dr. L. F. Bishop; Endocarditis in Childhood considered as a Symptom of Infective Diseases, by Dr. F. J. Poynton; and the Etiology and Diagnosis of Valvular Affections of the Heart, by Dr. T. E. Satterthwaite. There are three surgical papers—viz., on the Diagnosis and Treatment of

Hæmorrhoids, by Dr. G. W. Gay; on Abdomino-pelvic Diagnosis, by Mr. E. S. Bishop; and on the Surgical Relief of Traumatic Epilepsy, by Dr. D. B. Roncali. In the section devoted to Obstetrics and Gynæcology there are papers by Dr. J. R. Goffe, Dr. C. Lockyer, and Dr. C. D. Palmer, respectively, on the Causation of Sterility, Ectopic Gestation, and on Cervical Lacerations. The final paper is one on Surgical Intervention in Paralysis of the Ocular Muscles, by Professor E. Landolt. The volume is well illustrated with plates and figures.

Lessons on Massage. By MARGARET D. PALMER, Manager of the Massage Department of the London Hospital. Second edition. London: Baillière, Tindall, and Cox. 1903. Pp. 261, demy 8vo. Price 7*s.* 6*d.* net.—The instructions given in this book are founded upon the results of many years' experience, both in teaching and practical work. The first edition was published in July, 1901, and it must be gratifying to the authoress that a second edition has been called for two years later. A few alterations and additions have been made and chapters on the Nauheim or Schott Treatment and on Bandaging have been added. Two coloured plates and 116 other illustrations, photographic and diagrammatic, increase its usefulness. The book is written in clear, simple language and all difficulties are thoroughly explained.

Map of the Republic of Perú. Issued under the authority of DON EUGENIO LARRABURE Y UNÁNUE, Minister of Foreign Affairs.—We have received from the consul of Peru at Southampton, Mr. Eduardo Higginson, a large map of Peru with much information about the country printed on the reverse. The information is printed in English and the map is being distributed to make known "the inducements which Peru offers for capital, immigration, and colonisation." The area of Peru is given as nearly six times that of the United Kingdom and the population as about 3,000,000. It enjoys every variety of climate. Along the coast the mean temperature is from 64° to 68° F. A North American explorer is represented as saying: "Epidemics are unknown and dysentery is of comparatively rare occurrence on the Marañon. ...... Nature is so prodigal that everybody can get a living except physicians." It is therefore very disinterested of us to say that the map seems a good one.

The Story of the Vine. By EDWARD R. EMERSON. London and New York: G. P. Putnam's Sons, the Knickerbocker Press. 1902. Pp. 252.—*A Lay Thesis on Bible Wines.* By EDWARD R. EMERSON. Author of "The Story of the Vine." New York: Merrill and Baker. 1902. Pp. 63.—The author tells us that he has written the first of these books "to open the eyes of his fellow citizens," and that it is the outcome of an "extended tour" so timed that he could visit the important wine-producing centres of Europe. He chronicles what he saw and what he heard; he avoids the use of technical language, for he thinks "technics" and scientific tables are, "to say the least, tiresome." Mr. Emerson appears to have had experience of the effects of the wines of Greece, for he says they "affect the head greatly, making it ache 'ready to split,'" a point on which he is in agreement with other practical observers. Port, according to the author, consists chiefly of brandy; hence it is not surprising that "a certain nobleman" who has wine of the vintage of 1847 finds that it has not ripened yet. Sherry, too, "like the port wine, is subjected to sophistication," in connexion with which statement we refer him to our Analytical Commission on the subject.[1] Of French wine better things are said: "The finest wines that ever touched the lips of man are raised here;" and Mr. Emerson apostrophises champagne at considerable length under the curious heading "Viva Champagne"—it brightens "the star of hope," adds "a lustre to the charms of beauty," and "imparts to the pale cheek a blush that rivals the eastern sky heralding in the waking West the arrival of the solar god." The book is full of old stories, good, bad, and indifferent, and much space is devoted to the vine in America, for which the author prophesies a great future. It seems that the early English colonists strongly disapproved of drunkenness and a definition of that condition was given in a law of Maryland passed as early as 1638. Our police, and even our medical men, often have a difficulty in deciding whether a person is or is not intoxicated, but the definition of Maryland was a rather sweeping one—it was "drinking with excess to the noticeable perturbation of any organ of sense or motion." The punishment prescribed in 1658 for the first offence was either six hours in the stocks or a fine of 100 pounds of tobacco; for the second offence a whipping or a fine of 300 pounds of tobacco. For the third conviction the offender was to be "adjudged a person infamous and thereby made incapable of giving vote or bearing office during the space of three years next after such conviction." These circumstances, as well, perhaps, as soil and climate, may account for the fact that until recent times the United States of America have not been a wine-growing country as a whole. California is the one favoured spot in America for the growing of grapes and 24 of the 45 counties into which the State is divided produce wine. On the coast these liquors are called claret, sauterne, burgundy, and hock, and in the southern district they are called port, sherry, malaga, and madeira. We are not told why these names are adopted. The American vine factor, we are informed, is in the aggregate as fully advanced as his European competitors. There is something very charming in the expression "European competitors" but unfortunately for the American trade even some American people prefer what they call "the rare bouquet of imported wine." We do not profess any profound acquaintance with American wines, but the result of Mr. Emerson's extended tour, as he expounds it in his book, has not added to our knowledge of the wines of Europe, so that we cannot adopt his views of American products with any confidence. We learn from "A Lay Thesis on Bible Wines" that he is a maker of wines of over 60 years' standing.

On the Physics and Physiology of Protoplasmic Streaming in Plants. By ALFRED J. EWART, D.Sc., Ph.D., F.L.S., Lecturer on Botany in the Birmingham Technical Institute. Communicated to the Royal Society by FRANCIS GOTCH, D.Sc. Oxon., F.R.S. Oxford: Clarendon Press. 1903. Pp. 131. Price 8*s.* 6*d.* net.—This work is a record of a long series of observations begun in the year 1894 and completed in 1902, when an abstract of the paper was read before the Royal Society. The book is divided into an introduction which gives a historical sketch of the observations previously made of the streaming movements visible in the cell contents of plants, a chapter which deals with physics and chemistry in so far as they bear on the subject, a similar chapter on physiology, and one on the theoretical and general bearings of the experiments which were made to elucidate the problem. The record of the investigations gives the impression that the author has done a good, honest piece of work. The subject is one of very great interest but it is not one to which we can devote the space which the intrinsic merits of the paper deserve and we must be content to quote the conclusion at which the author arrives. This is that "the only kind of energy which appears capable of producing streaming movements under the conditions existing in plant-cells is surface tension energy and this is probably brought into play by the action of electric currents traversing the moving layers and maintained by chemical action in the substance of the protoplasm." As a theoretical explanation of the manner in which this phenomenon is brought about

---

[1] THE LANCET, Oct. 29th, 1898, p. 1135.

Dr. Ewart suggests that the currents may be supposed to act upon regularly arranged bipolar particles of protoplasm in such a manner as always to lower the surface tension on the anterior faces and to raise it on the posterior ones. The book is excellently printed and the illustrations are perfectly clear and are well reproduced.

Transactions of the American Climatological Association for the Year 1902. Vol. XVIII. Philadelphia: Printed for the Association. Pp. liii.–370.—The most interesting paper in this volume gives a description of a sanatory tent invented by Dr. Charles Fox Gardiner. Anyone who has had practical experience of sleeping or of trying to sleep in a tent knows that discomfort often arises from one of two causes. There may be a deficiency of ventilation or a trouble from damp. In Dr. Gardiner's tent attempts are made to overcome both these difficulties and we should imagine with success. This judgment is formed from the drawings, which give full "working details," but of course a true estimate of the value of such a tent can only be obtained by actual experience. The points which commend themselves to us are that a moveable floor is placed some distance above the ground and that the inlets for ventilation are placed low down, so that a draught, at any rate theoretically, would not annoy the inmate, while the outlet for the foul air, situated at the top of the tent, after an Indian model, is so arranged that its area can be easily increased or diminished at will. One objection to the tent which occurs to us is that the complexity of the arrangements would necessarily render it expensive and heavy and therefore unsuitable for transport. The greater part of the volume is taken up by an account of a visit which the association paid to California, and by a number of papers which were read in praise of that State. The tourists were delayed by floods in Kansas, where the mud is of a tenacious character, and this and the habits of prairie dogs impressed the party unfavourably. The welcome afforded them in California appears to have pleased them and their first host assured them that they had come amongst "a wonderful people." The 40 States had, he thought, been sifted to get the seeds to plant Southern California with men. The speaker for the visitors paid what the scribe of the society calls a "glowing tribute" to the Californians, especially the women with their "sun-kissed cheeks." All this is very amusing even if it hardly tends to raise the American Climatological Association in the estimation of less expansive Europeans.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K C.B., F.R S., and J. N. LANGLEY, F.R.S. Vol. XXIX., Nos. 4, 5, and 6. London: C. J. Clay and Sons. Price, Nos. 4 and 5, 8*s.*; No. 6, 3*s*—The articles contained in Nos. 4 and 5, issued simultaneously, are:- 1. Some Further Observations on the Reaction of Urochrome with Acetaldehyde, by Archibald E. Garrod, M D. Oxon. 2 An Experimental Inquiry into the Formation of Gall-stones, by Vaughan Harley, M.D. Edin., and J. O. Wakelin Barratt, M.D. Lond. In these experiments it was found that gall-stones introduced into the gall-bladder of a healthy dog had a tendency to disappear but if cholecystitis was set up they did not disappear. 3. The Rôle of the Liver and Spleen in the Destruction of the Blood Corpuscles, by W. Bain, M.D. Durh. Amongst the conclusions that Dr. Bain draws from his experiments are that the liver and the spleen both have a hæmolytic action, the former chiefly on the red and the spleen on the white corpuscles, especially on the polymorphonuclear leucocytes. 4. Poikilothermism in Rabies, by J. O. Wakelin Barratt, M.D. Lond., with four figures in the text. The poikilothermism occurs in the terminal stages of rabies. 5. The Influence of Ablation of the Liver on the Sugar Contents of the Blood, by F. W. Pavy, F.R.S., and R. L. Siau. The quantity varies greatly in different experiments but never falls below one-half part in 1000 parts. 6. The Influence of Compressed Air and Oxygen on the Gases of the Blood, by Leonard Hill, F.R.S, and J. J. R. Macleod, M.B. Aberd. 7. The Time Relations of the Photo-electric Changes in the Eyeball of the Frog, by Francis Gotch, F.R.S. 8. The Spleen in Relationship to the Processes of Hæmolysis, by D. Noel Paton, M.D. Edin., and Alexander Goodall, M.D. Edin., with a plate. 9. On Some Effects of the Constituents of Ringer's Circulating Fluid on Skeletal Muscular Contractions in Rana hexadactyla, by R. Row, M.D. Lond., with 13 figures in the text. 10. A Contribution to the Chemistry of Proteids, Part ii., the Constitution of Tryptophane and the Action of Bacteria upon it, by F. Gowland Hopkins and Sydney W. Cole. The contents of No. 6 are: 1. On the Mechanism of Phloridzin Glycosuria, by F. W. Pavy, F.R.S., and R. L. Siau, with four figures in the text, and the Influence of Compressed Air on the Respiratory Exchange, by Leonard Hill, F.R S., and J. J. R. Macleod, M.B. Aberd.

The Practitioner.—The September number of the *Practitioner* contains a more than usually large amount of interesting matter. First, there is an important article by Mr. A. H. Tubby entitled "Is the Urban Hospital Treatment of External or Surgical Tuberculosis Justifiable?" Mr. Tubby makes out a very strong case against the treatment of surgical tuberculous cases in the hospitals of towns, partly by a comparison of statistics which he has collected from town and country hospitals, and he brings forward a business-like suggestion for remedying what is obviously a most unsatisfactory and wasteful condition of affairs. Also related to the question of tuberculous disease is a short article by Dr. P. Horton-Smith containing a "healthy patient's" experiences of sanatorium treatment on the well-known Nordrach lines. Dr. Horton-Smith refutes the common accusation of monotony. Dr. Guthrie Rankin writes a practical paper on Headache and Dr. J. Blumfeld summarises some recent work in the field of anæsthetics.

THE REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR THE YEAR 1902.

SECOND AND CONCLUDING NOTICE.[1]

THE isolation and treatment of cases of small-pox have thrown a great amount of work on the administrative machinery of the Metropolitan Asylums Board. It is a very remarkable fact that although the poorer classes in London are often averse to the use of the simple protective operation of vaccination yet the outbreak of an epidemic of the disease immediately causes the greatest excitement and the most fearful dread. The first great epidemic with which the Board had to deal commenced about four years after its formation in 1884–85 and during that period over 12,000 cases were treated in 15 months. In the year 1901–02 nearly 10,000 cases were treated within a period of 11 months, but of these patients it should be said that more than 1000 came from extra-metropolitan districts. The last epidemic raged from September, 1901, to July, 1902, and at one time no less than 1604 patients were under treatment. The method now adopted is immediately to banish a small pox patient from London and no case is allowed to remain in the metropolis for more than a few hours after notification, for the patients are immediately taken to Rotherhithe by the river ambulance service of the Board. At the commencement of the last outbreak there were only 1320 beds available. Temporary buildings were provided at Long Reach (300 beds) on the Thames, by the erection of the Orchard Hospital (800 beds), by the extension of Lower Gore Farm Hospital (from 238 to 850 beds), and by the erection of some temporary huts at Upper Gore Farm Hospital. It is worthy of note that no less than 600 cases were wrongly diagnosed as small-pox "and removed from their houses." These mistakes arose in consequence of the very small acquaintance which medical practitioners have with the disease. In order therefore to afford to them and to students some opportunity to remedy this unfortunate ignorance, medical instruction will in future be given at the small-pox hospitals and opportunities will be afforded of studying the clinical features of the disease. Since it has been the [illegible] in practice without ever having seen a single case. This has been unfortunate both for them and for their patients, and the numerous mistakes in diagnosis have caused a good deal of trouble to the medical officers of the Metropolitan Asylums Board.

---

[1] The First Notice was published in THE LANCET of Sept. 12th, 1903, p. 776.

Mr. W. McC. [illegible] of the river ambulance servi[illegible]ar 1902 7896 patients were la[illegible] wharves at Rotherhithe. Of these 7842 were certified as cases of small-pox and 54 were uncertified. Of the former 7235 cases proved to be, and 607 proved not to be, cases of small-pox. It is both interesting and instructive to examine the list of diseases which were mistaken for this disorder, but the list is really too long to be quoted *in extenso*, for the cases fall into no less than 47 categories, including some cases of "no ascertainable disease." We must be content to mention the chief diseases which caused the mistaken diagnosis and refer those who require the full details to the table given in the report on p. 233. In a numerical arrangement it is found that chicken-pox heads the list with 203 cases, and of the other specific fevers there were 48 cases of measles, seven of German measles, and four of scarlet fever. A very large proportion of the errors arose in connexion with diseased conditions of the skin. Dermatitis unclassified (which probably includes a number of dissimilar conditions) comes next to chicken-pox, with 74 cases, and there were seven other cases of dermatitis distinctly traced to bites of vermin. There were 32 cases of acne, 31 of eczema, 30 of syphilis, 26 of lichen, 13 of erythema rheumaticum, 12 of nettle rash, 4 of impetigo, 11 of scabies, and 2 of erythema iris. The proportion of mistakes in diagnosis was 7·7 as compared with 13·3 in the year 1901 and in the year 1893. Cases are now sent off for treatment at an earlier stage than was formerly the case and Mr. Wanklyn complains that this tendency to enforce early removal is carried to extremes, so much so indeed that patients are occasionally sent off before they have manifested any distinctive symptom of the disease and who, in fact, are not suffering from it. It is, of course, well that patients should be isolated and placed under proper treatment as soon as possible, but the medical officer of the river ambulance service relates a case in which six patients, two only of whom had a rash, were sent at the same time from the same house, and he lays it down as a general rule that cases should not be sent before the eruption has distinctly proclaimed the nature of the disorder.

Some difference of opinion has existed between the medical officer of health of the borough of Bermondsey and the Metropolitan Asylums Board in regard to the effect of the ambulance wharf on the incidence of small-pox in the borough. In the report presented by Mr. Wanklyn there appears to be a little confusion between the facts observed and the inferences drawn from them. The most important fact observed by the medical officer of health of Bermondsey was that the incidence of small-pox was twice as great in the neighbourhood of the wharf as it was in any other part of the borough. The inference drawn by the Bermondsey sanitary adviser was that the ambulance wharf was the cause of the increased incidence of small-pox in its neighbourhood. The Metropolitan Asylums Board thinks otherwise. Without disputing the facts of the case the Board is indignant at the inference of the medical officer, being convinced that the facts "did not warrant him in bringing so grave a charge."

The statistics of the cases of small-pox treated are given fully in the report on pp. 251 to 267 and these may be most profitably studied in the form in which they are presented and no useful purpose would be served in discussing them in this place. Before passing from the subject, however, it may be of interest to point out that the sectional reports incidentally contain some information which is worthy of note. There is a record of the case of a patient who appears to have undoubtedly had two attacks of small-pox within a very short interval. The history is unusually complete and is briefly as follows. The first attack commenced on Dec. 27th or 28th, 1901, and the second in April, 1902; in the first illness the symptoms were described by the medical attendant as "typical" and the account the patient, who was a nurse, gave of them was perfectly clear. On going to the Gore Farm Hospital she was not vaccinated. The second attack was contracted there and she was under the treatment of Dr. F. H. Thomson, the medical superintendent, who has recorded the case.

A very important matter of permanent interest is ably dealt with by Dr. T. F. Ricketts, the medical superintendent of the hospital ships. It concerns the amount of hospital accommodation which is likely to be wanted in case of an epidemic and shows the method which he adopted in making his report when he was asked by the Board to advise as to the provision to be made in view of the epidemic which was just beginning in November, 1901. Dr. Ricketts naturally approached the subject with diffidence, or, as he puts it, "with great reluctance and realising the difficulties of the question." At the time there were 400 patients under treatment. He argued that it was improbable that the number of patients who would need isolation at any one time in the following spring would exceed 2500 and that it would probably be something between 2000 and 2500. This forecast was made on the assumption that the mortality, which was very high at the beginning of the epidemic, would fall to about 10 per cent. (as the event proved the mortality did fall but it remained as high as 16 or 17 per cent.). A high death-rate naturally has the effect of reducing the average period of treatment of cases and therefore of diminishing the number under treatment at one time and consequently of reducing the necessary amount of accommodation required. Thus a maximum between 2000 and 2500 on the assumption of a 10 per cent. mortality would approximately correspond to a maximum lying between 1800 and 2250 with a mortality of 16 or 17. As the event proved the largest number of patients actually under treatment at one time was 1600, but Dr. Ricketts observes that that figure was, as it necessarily must have been, determined by the fact that there were no more beds available. Dr. Ricketts points out that in coming to a determination as to when a patient shall be discharged from a hospital, the medical officers are guided by two considerations: they have to form an opinion as to (1) whether a patient has ceased to be infectious; and (2) whether he is cured of his disorder. Small-pox patients are liable to suffer from affections of the eyes, from boils, and from abscesses, and these symptoms must be considered as part of the disease, though not necessarily infectious, and patients are usually and properly retained in the hospital until they have completely recovered. "But in the stress of the last epidemic when beds were to seek such considerations went to the wall." At such a time the least of two evils has to be chosen "and the recovered, but it was hoped uninfectious, patients were discharged to avoid the necessity of leaving acutely infectious patients unremoved from home."

Increasing experience has of late years led to a considerable improvement in the classification and treatment of imbeciles. It has been proved that whilst some of these unfortunate patients are capable of improvement, the condition of others is hopeless. These two classes require, and now obtain, different treatment in the hospitals which are managed by the Metropolitan Asylums Board. The first thing necessary is, therefore, to classify the patients and this is now done at Tooting Bec, a hospital which forms a clearing house for patients. The cases in which improvement may be hoped for are sent to Rochester House, Ealing. It is hoped that ultimately the classification of imbeciles will be more thorough and that the distinct classes will be always separately housed. The total number of cases of imbeciles which came under treatment during the year was 6323.

The report gives a rather meagre account of the changes which have lately taken place in the management of the training ship *Exmouth*, but we are told that the newly appointed captain-superintendent of the ship, who was appointed early in the year, took an unfavourable view of the condition of her hull and the Admiralty, to whom she belonged, reported that "it was practically beyond such repair as would enable it to serve for any considerable time to come." The report of the superintendent who resigned at the end of the year does not appear in the report. The training on the ship is more appreciated by the guardians of the rural districts than it is by many of those within the metropolitan area, consequently the number of country boys educated there increases and as the writers of the report rather plaintively remark "the country as a whole reaps the benefit of this excellent means of training boys which was provided and intended for London alone." The metropolitan guardians are undoubtedly too apathetic in this matter to which we would direct their attention and we may add the assurance, which will possibly be new and even surprising to some of them, that London boys make some of the best sailors in the Royal Navy.

The total number of the staff in the employ of the Board seems enormous; it amounts to 4844. At the head office no fewer than 98 are engaged. In regard to the building of the head office itself, it is rather curious that it was built over a ventilator of the District Railway Company and it is not quite evident from the report what exit, if any, has been provided for the noxious fumes which were formerly discharged at this point. The staff of the imbecile asylums amounts to over 1000 and that of the fever hospitals to nearly 3000. The ambulance service employs about 300. The financial management of the Board is intrusted to a special committee, and, although it hardly falls within our scope to deal in any detail with this part of the Board's work, it may not be out of place to say that the recent changes made appear to show satisfactory results. For example, a considerable amount of the ratepayers' money has been saved by obtaining coal direct from the collieries and there can be no doubt that the Local Government Board—a department which has rightly the reputation of exercising due caution in the matter—is satisfied with the general financial arrangements of the Board, for it has during the year under review extended its borrowing powers to the extent of 100 per cent.

A word should be said as to the outlying work managed by the Board. In addition to the hospitals and asylums in and around London there are convalescent homes at Margate, Bognor, and other places. These institutions are of the greatest use and form a fitting complement to the other work done by the Board. It will be readily seen from the foregoing how widely the fever hospitals are distributed and how numerous they are. The working of them is usually performed so quietly and so unostentatiously that few of the people of London know anything of its scope or of its nature. This speaks volumes for the work of the medical staffs. In the report the names of the medical superintendents are given without qualifications and without titles. It is not fitting that members of the medical profession—Doctors in the Universities of Oxford, of Cambridge, and of London, and Fellows of the Royal College of Surgeons of England—should be so treated, and now that attention is called to the fact we may hope that the chairman of the Board or the Clerk to the Board will see that in future the medical officers receive their proper styles in the official literature of the Board.

ASYLUM REPORTS.

Royal Asylum, Montrose (*Report for the year ending May 14th, 1903*).—The average number of patients resident during the year was 690, comprising 321 males and 369 females. The admissions during the year amounted to 161—viz., 80 males and 81 females. Of these 133 were first admissions. Dr. John G. Havelock, the medical superintendent, states in his report that many of those admitted were in very feeble bodily health; 10 had general paralysis, 13 had pulmonary tuberculosis, 39 had various affections of the heart and vascular system, 15 were profoundly anæmic, four were subject to epilepsy, and the rest suffered from other complaints. The number of patients discharged as recovered during the year amounted to 63—viz., 30 males and 33 females, or 9 per cent. of the average number resident. The deaths during the year amounted to 77, or 11·2 per cent. as calculated on the same basis. Of the deaths two were due to epilepsy, two to chorea, four to cerebral hæmorrhage, five to cancer, nine to general paralysis of the insane, 10 to cardiac disease, 12 to senile decay, 14 to pulmonary tuberculosis, and the rest to other causes. A post-mortem examination was made in all cases where the consent of the patient's friends could be obtained. "The death-rate," observes Dr. Havelock, "while lower than in the previous year, was above the average and was accounted for by the number of patients received in bad bodily health. No less than six patients succumbed within a few days after their admission and there was also a large proportion of broken-down senile cases and cases of incurable disease." Among the deaths was that of a woman who had resided continuously in the institution for the long period of 57 years. The new villa for female patients has made very substantial progress and it is expected that it will be ready for occupation before the end of 1903. "By the removal of 60 patients to this building overcrowding in the female pauper division will be entirely done away with and the working of the institution will be greatly facilitated by allowing a better classification of the patients in the various wards." A thorough inspection of the institution and of the appliances for the extinction of fire was made by Captain Paterson, chief of the Glasgow Fire Brigade, who recommended certain modifications in the existing arrangements as regards the fire-pumps and water-supply. The importance of segregating tuberculous patients has been fully recognised and for some time past such patients have been treated "in the receding wings of the hospital in such a way as to minimise the danger of tubercular infection being communicated from one patient to another. I do not regard this arrangement," adds Dr. Havelock, "as an absolutely perfect one, but it seems the best we can devise in the existing buildings." The Commissioners in Lunacy state in their report that the asylum was found to be in excellent order during the visit, that every section of it was scrupulously clean, that the wards were comfortably furnished and made cheerful with pictures, plants, and objects of interest, and that the medical case-books and registers were well and regularly kept. The committee of management states in its report that the treasurer's financial statement was fairly satisfactory, as it showed a balance on the right side of £538 12s. The long-delayed scheme of drainage for the Hillside district, in which the asylum is included, has at length been approved of and it is expected that the works will be commenced forthwith

East Sussex County Asylum, Hayward's Heath (*Annual Report for 1902*).—The average number of patients resident during the year was 993, comprising 416 males and 577 females. The admissions during the year amounted to 253—viz., 99 males and 154 females. Of these, 217 were first admissions. Dr. E. B. C. Walker, the medical superintendent, states in his report that 23 males and 34 females among the admissions were between 55 and 75 years of age and that six females were over 75 years of age. 12 of the patients admitted were cases of epileptic insanity, 14 had general paralysis, and 22 were cases of incurable dementia. The number of patients discharged as recovered during the year amounted to 73—viz., 29 males and 44 females, or 7·4 per cent. of the average number resident. The deaths during the year amounted to 99—viz., 48 males and 51 females, or 10 per cent. as calculated on the same basis. Of the deaths two each were due to pneumonia, pleuropneumonia, and cancer; three to bronchitis; four to renal disease; seven each to brain atrophy, epilepsy, cardiac disease, and colitis; 10 to pulmonary tuberculosis; 11 to senile decay; 13 to general paralysis of the insane; and the rest to other causes. The cause of death was ascertained by post-mortem examination in 57 cases. The mean age at death for both sexes was 54 years. Four accidents of a serious nature occurred during the year and consisted of fractures of the limbs from falls; none of them was followed by a fatal termination. A female patient admitted while pregnant gave birth to a child three weeks after admission. The woman, who suffered from general paralysis of the insane, died shortly afterwards. Five patients escaped from the asylum, but all were recaptured and brought back after short absences. Early in the year a nurse who had joined the staff 12 days previously showed symptoms of small-pox. The case was of a very serious type and terminated fatally on the tenth day after the invasion of the disease. "This nurse had never been vaccinated and it was understood that her relatives had strong objections to vaccination. The whole of the staff and the greater number of the patients (about 700) were vaccinated and fortunately there was no further outbreak of the disease." The accommodation at the asylum for female patients proving inadequate a contract was entered into with the North Riding Asylum, Yorkshire, for the reception and boarding of 15 female patients and a further arrangement of a similar nature has been subsequently entered into with the Lincolnshire County Asylum at Kesteven. The Commissioners in Lunacy state in their report that the patients' appearance was tidy, that the asylum was maintained in proper order, that the bedding was in excellent condition, and that the medical case-books were well kept. The committee of management states in its report that the discontinuance of beer in the asylum reported last year has been attended with success and that there can be little doubt that the alteration is beneficial to all concerned.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 19, 1903.

Typhoid Fever and Armies.

A RECENT letter by Dr. H. E. LEIGH CANNEY in the *Times* urging the adoption of a particular policy for the prevention of typhoid fever in the army, and a leading article in the same journal advocating the immediate carrying out of the full programme propounded by Dr. CANNEY, afford serious food for thought. Postponing for the moment the consideration of the particular plan of campaign which is advocated by Dr. CANNEY we may devote a preliminary word to the ethical issue which presents itself when a complicated technical question is made the subject-matter of a referendum to the general public. It is a principle, observed in connexion with the military policy of every nation, that officers are debarred, in the case where operations in the field are in contemplation, from bringing the pressure of public opinion to bear upon the adoption of this or that strategical plan. The principle which is involved seems to us a principle of so far universal obligation that it should be applied to the strategical methods of preventive medicine in the army. The efforts ought to be discountenanced of those who seek to persuade the public to take upon itself the responsibility of selecting this or that technical method for the achievement of an end however desirable. As a matter of fact, the intelligent layman cannot be induced to take upon himself the responsibility of dictating the adoption of particular means unless it be represented to him that the problem which has to be dealt with is an absolutely simple problem, and that the remedy which it is proposed to apply is a remedy which is, by a consensus of expert authority, approved as effective. Unless he is told these things he will not take sides in a matter which is obviously without the scope of his personal experience. The problem of the dissemination of typhoid fever in the army has been represented to the public in just such a light. It may be apprehended by the intelligent layman as a transparently simple affair if he regards typhoid fever as spread solely by polluted drinking water. To the medical mind the dissemination of typhoid fever is a more complicated affair. There is involved in it, on the one hand, the indirect convection of infection chiefly by means of polluted water, milk, and shell-fish, and, on the other hand, the direct convection of infection to those who come into intimate personal contact with the sick. To the hygienist the convection of infection presents itself as an altogether formidable problem. It presents itself under one aspect where the dissemination takes place in civilised urban surroundings. And it presents itself under quite another aspect when the more primitive surroundings of the country or of an army in the field are in question.

It is obvious that in towns furnished with a water-borne sewerage system, which achieves the immediate removal of all excreta, the opportunity for the spread of typhoid fever by contact with the excreta is reduced to a minimum. Therefore the public at large remains in ignorance of this method of infection. The indirect spread of typhoid fever, associated as it is with the outbreak of epidemics, arrests, on the contrary, the attention of the layman. Generalising unconsciously from particular experience the lay mind—and to some extent the medical mind also—has come intelligibly enough to attribute a too exclusive influence to water-borne contagion, while overlooking the risks which attend direct contact with the infected excreta. This distortion of vision constitutes the strength of Dr. CANNEY'S position. If we desire to learn what are the sources of typhoid infection in more primitive surroundings we may look to our Indian cantonments, or we may turn for information to the masterly essay in which Professor KOCH has recently set forth the result of his investigations into the channels of typhoid infection in the endemically infected villages along the western frontier of Germany. In the introductory part of the essay in question Professor KOCH draws attention to the fact that the diminution of typhoid fever and dysentery which has followed the introduction of effective sewerage arrangements into German towns has no counterpart in the rural districts of Germany. This undiminished prevalence of typhoid fever and dysentery in the villages has direct relation with the fæcal contamination which can be found, when it is sought for, in the houses of the villages and in their purlieus. In the case of the endemically infected village, which formed the special text of Professor KOCH'S discourse, the infection was clearly traced, not to indirect contagion by means of polluted water, but to direct fæcal contamination of the dwelling and its surroundings. The problem of the prevention of typhoid fever in rural surroundings differs from the problem as it presents itself in connexion with an urban environment in civilised countries, and this must not be overlooked. It will be recognised that the conditions of our army in the South African war, and the conditions of a regiment in an Indian cantonment, are analogous rather to those conditions which obtain in the endemically infected villages studied by Professor KOCH than to those which obtain around us in towns. In point of fact, the conditions which we have to deal with in our army abroad present the very closest analogies to the conditions of a German army corps engaged in field manœuvres in the endemically infected districts along the western frontier of Germany. In the German army, as in our own, the risk of the outbreak of typhoid fever among the troops quartered or campaigning in endemically infected districts is a question of absolutely national importance. It is thoroughly well appreciated in military medical circles in Germany that the outbreaks of typhoid fever among the troops, which are invariable incidents of manœuvres in the Rhineland, would occur on an infinitely larger scale if it became necessary to mass an army on the western frontier. Professor KOCH'S investigation of the spread of typhoid fever in the villages in this district had, in point of fact, its origin in these military considerations. And it may incidentally be remarked that the result which we have quoted constitutes only the first-fruits of a methodical investigation which is still being conducted by means of well-equipped bacteriological laboratories specially placed in the endemically infected districts.

We have lessons here which it behoves us as a nation to take to heart. Perhaps the most important of these lessons is that the prevention of typhoid fever in armies forms a difficult problem, one the solution of which will involve continuous research. The second and the subordinate lesson is that it would be ill-advised to place any confidence in a plan of campaign against typhoid fever which concentrates the attention upon the prevention of indirect contagion by polluted water and which takes little account of the formidable dangers of direct fæcal contamination. Such a policy will be a policy of closing all the windows and leaving open all the doors to typhoid fever infection.

◆

The New Profession of Optometry.

WE think that an article by a Dr. C. H. BROWN, who appears to possess an American degree, and who writes in a recent number of the *Optician and Photographic Trades Review*, merits attention from us, because the proposals therein contained meet with the approval of his editor. The *Optician and Photographic Trades Review* is a journal conducted with much ability and devoted to the advancement of those who deal in spectacles, cameras, barometers, and other philosophical instruments, and its editor considers that the arguments advanced by his contributor, Dr. BROWN, are "eminently calm, broad-minded, and judicial," adding that "coming as they do from a highly respected member of the esteemed medical fraternity they are not entirely novel on this side of the Atlantic, though they may be somewhat rare." The article thus authoritatively endorsed proposes to the world the institution of a new profession—the profession of optometry. This is to be founded on anatomy, physiology, natural science, and mathematics, and just as the medical profession has passed through certain stages of evolution, so in the new profession of optometry educational qualifications must be increased from year to year, while legislation is required (in the United States, of course) to organise boards to examine into the qualifications of those desiring to practise refraction. Dr. BROWN continues: "As optometry is a specialty of medicine it behoves the optician to know something of anatomy and physiology in general, and of the anatomy of the eye and the physiology of vision in particular. He should have some knowledge of neurology and the various nervous ailments which are directly caused by, or dependent upon, eye-strain. He should have some knowledge of ophthalmology in so far as it includes the various diseases of the eye, not for the purposes of treatment, but for its prompt recognition in those who apply to him for glasses, in order that intelligent advice may be given the patient to seek medical assistance before the pathological condition has become chronic or incurable." We submit that a man who possessed such knowledge would not be badly equipped for medical practice, whether in particular or in general. But this is not all. The new optician is to play his interested part in the diagnosis and treatment of functional neuroses. "The most common form of neurosis," says Dr. BROWN, "is headache. The location of the pain and its character are more or less familiar to us, as are other symptoms of which headache sufferers complain, such as insomnia, dyspepsia, and constipation, lassitude, and neurasthenia." The causes of these symptoms are to be sought for by the new optician. This, apparently, is Dr. BROWN'S view: can it be seriously the view of the editor of the *Optician and Photographic Trades Review?*

It will be seen that Dr. BROWN admits that in the application of the science of optics to the correction of imperfections and irregularities of eyesight much more is required than a mere knowledge of the physical conditions that may be present. It may indeed be taken for granted that so far as the optical principles involved in any case are concerned the optician is, or ought to be, capable of giving as good an opinion as the ophthalmologist. The glasses he can supply may be quite as correct as those prescribed by the medical man, compensating accurately and perfectly for the defects of the patient's eye; but unfortunately in many cases the glasses are none the less unsuitable and should not be worn. Many circumstances have to be taken into consideration of which the optician, even though he possess a knowledge of "anatomy, physiology, natural science, and mathematics," is no judge. The general health of the patient, his avocation, the conditions under which he works, the length of time the glasses should be worn, are all points upon which the medical man is better qualified to give an opinion than the optician. It is true that Dr. BROWN qualifies his contention by saying that the medical knowledge acquired by the optician should only have reference to the eye and that "in his eagerness to claim all the prerogatives of his new profession the optician must not allow his zeal to cause him to overstep the mark." The optician must not be "led into prescribing lotions for various forms of inflammation," yet Dr. BROWN adds in the next sentence, that he "believes the day is near at hand when the properly qualified or graduate optician will be allowed the privilege of using mydriatics, myotics, and cycloplegics." It seems to us that Dr. BROWN'S "eminently calm, broad-minded, and judicial" arguments amount to seeking a back entrance into the medical profession. As for the medical practitioner of the future it seems that he will enjoy a sinecure. Certain druggists will treat all coughs, colds, cutaneous affections, and genito-urinary diseases except stone, though the Pharmaceutical Society certainly does not approve of such action; certain nurses will take charge of all obstetrical cases except puerperal mania, though the scope of the registered midwife's duties are now legally defined; the bone-setter will willingly undertake all sprains, dislocations, and fractures except those of the spinal column, and only apprehensions of a charge of manslaughter limit his activity; and the new optician of Dr. BROWN'S imagining, after first ascertaining that "spinal irritation, melancholia, neurasthenia, chorea, epilepsy, and even insanity" have *not* their origin in, and are *not* dependent upon, difficulties attending the function of vision, can proceed to supply a pair of spectacles.

We do not propose to reopen any old controversy upon the sphere of the optician. It is quite clear that no *one* but a medical man can make a proper diagnosis, in a case where failure of sight is a symptom, by excluding the different forms of nervous disease. We take no narrow or class view of this matter. It is a natural expression of the desire of opticians to get on in the world that they should struggle to attain to a professional position, but if the position can only be conquered by undergoing a medical curriculum they must undergo it. To re-state the position again, in words which we have previously used, the simple facts are as follows. The eyes are organs in which mere faults of shape and alterations of function incidental to advancing life are frequently complicated by physiological defects and pathological changes of a serious character. The knowledge of the qualified medical man covers, or at any rate may be presumed to cover, the whole range resulting therefrom. The knowledge of the optician at the very best covers only a small and comparatively unimportant portion. In these circumstances the claim of the optician to be a skilled adviser in matters appertaining to vision cannot be sustained. To look more particularly at Dr. BROWN'S proposal for the constitution of a new profession, we do not see in it any of the fairness and breadth of view for which it is commended by the editor of the *Optician and Photographic Trades Review*. It is a piece of special pleading for the performance of medical duties by an unqualified person, and there is nothing new about it. What Dr. BROWN means by a properly qualified or graduate optician we do not know. In this country a graduate is a person who has obtained a degree at a university. Now, even though the number of universities in Great Britain should, in response to the eloquent appeal of Sir J. NORMAN LOCKYER, be quadrupled within an appreciably short space of time, we still believe that only a small number of graduates at these universities would be desirous of serving in the shops of the sellers of spectacles. At any rate, Dr. BROWN'S suggestions for the legalisation of medical practice by unqualified persons will await realisation for some time in this country.

◆

Laundries, Sanitary and Insanitary.

ALTHOUGH there has been much improvement during the last few years in the design and construction of laundries, so that in the average modern laundry the arrangements are nearly perfect, yet, especially in London, there still remain a large number of laundries which are a standing menace to the public health. These laundries are exempt from inspection under the Factory Act which expressly excludes from its provisions laundries in which not more than two persons outside the laundryman's own family are employed. Unfortunately, whilst they escape the attentions of the factory inspector they appear also to be outside the cognisance of the local sanitary authority, and so go without any sort of supervision. There is nothing to prevent them being insanitary and in most cases the word "sanitation" has no meaning for their proprietors. They are stowed away in all sorts of courts, alleys, and back streets, and in almost every case the premises are totally unsuited for the work. The clean and dirty linen comes into close contact in the narrow passage and in other parts of the laundry, and there is every opportunity for infection to be conveyed from one to the other. The actual washing is done in some small outbuilding, reeking with steam and in an atmosphere loaded with all forms of impurity; the ironing place is often a cellar, but sometimes the living rooms of the occupants; and the clothes are hung out to dry in the rooms where they are ironed. The rooms themselves are brought up to a scorching temperature by the stove used to heat the irons, and all ventilation is rigidly excluded. The faces and bodies of the ironers are bathed in perspiration and there is no fresh air to dilute the emanations from their bodies. Several cases have been brought to light in which linen was being handled in a room occupied by a member of the family in bed with an infectious fever; notably a case was reported in THE LANCET in which the linen sent to be washed was hung out to dry over the bed of a small-pox patient.[1]

This was some 25 years ago, but there has been no change for the better in the condition of such small laundries as have not been crowded out by the competition of the better equipped institutions. The local sanitary authorities either have no powers to deal with the small laundries or if the powers are in existence they are never used. As matters stand there is no means of knowing where these laundries exist; they are unregistered and a list compiled to-day would be practically worthless in six months' time, for they spring up, change their abodes, or die out almost from week to week. In the event of an epidemic breaking out the existence of these hole-and-corner laundries and the difficulty of discovering their whereabouts might render the task of the medical officer of health and the sanitary authorities in discovering the centres of infection a most arduous one. The importance of keeping laundries under observation is recognised by many municipalities and urban councils, but instead of noting where the real danger obviously lies they have been inclined to harass the already much regulated and inspected big laundry, where the risk of infection spreading is comparatively small. By a few local regulations the medical officer of health is given power to require laundrymen to furnish him with lists of their customers. This is simply a source of exasperation to the well-conducted laundries, which are the only ones really affected, whilst the precaution is absolutely useless in the interests of public health. The reason is that to many large laundries are attached a number of branches or "receiving shops" where soiled linen is handed over the counter. The goods are distinguished by numbers only, and the laundryman in most cases has not the remotest notion of the names of many of his customers. The only lists which the laundryman could furnish would be those of his well-to-do customers who do not need supervision. What is required to enable sanitary authorities to deal successfully with the question is an Act to compel every laundry working for hire, no matter how small it may be, to register its name and address with the sanitary authority, and the laundry should not be allowed to carry on operations unless the medical officer of health is satisfied as to its sanitary condition. However excellent the "cottage laundry" may be amongst the green fields it is a distinct anachronism in our crowded cities, where it degenerates into a "slum laundry." At some of these small laundries the actual washing and drying of the articles are done at the public washhouse and the linen is taken home to be starched and ironed; but it does not result of the analyses showed that the relative amount of organic impurity found in the specimens could be numerically represented as follows: Kent, 7; New River, 13; Southwark and Vauxhall, 27; Lambeth, 32; Grand Junction, 34; East London, 42; Chelsea, 44; and West Middlesex, 49. The analytical report is signed "H. J. Helm, p.p. T. E. Thorpe."

---

[1] THE LANCET, August 18th, 1877, p. 241.

THE CASE OF DR. LACHLAN GRANT.

On Thursday, Sept. 10th, Dr. Lachlan Grant, in accordance with an order of the Court of Session, had to cease from practice in Ballachulish. The quarriers are still standing by him and during the time for which he may be debarred from practice in the district they have appointed a substitute to attend to themselves and their wives and families. Dr. Grant is continuing to practise outside the prescribed area and in the meantime is awaiting the result of the appeal to the House of Lords. A very enthusiastic meeting of the quarriers was held on Sept. 4th, when the decision was expressed to stand by Dr. Grant. The defeat of the Government in the recent Argyllshire election is attributed in some quarters to the Ballachulish case, for the Unionist candidate had among his supporters a "gentleman who is believed by everyone in Ballachulish to be mainly responsible for the present deplorable situation." So says a correspondent writing in the *Glasgow Herald* of Sept. 7th.

THE TREATMENT OF GANGRENOUS HERNIATED BOWEL.

Two cases of strangulated femoral hernia treated by different operative methods are reported by Mr. H. W. Webber as having been operated upon in the South Devon and East Cornwall Hospital by Mr. C. Whipple. The methods employed are compared in the narration of the cases and lead us to consider the following question. When the sac of a hernia has been incised and the operator finds that the contained intestine has been so much damaged that it will probably or certainly die, what is to be done with the gangrenous bowel? To take the methods in their historical order we may mention that the first mode of treatment of such a condition was to leave the herniated bowel *in situ* without attempting to return it, hoping that when the bowel wall sloughed away a fæcal fistula would result and thus any further intestinal obstruction would be avoided. Still later, it was customary to make an opening into the gangrenous bowel at the time of operation and thus to relieve the obstruction at once. Occasionally when the death of the loop of the bowel was not quite certain some surgeons were in the habit of returning it just within the hernial opening, so that the intestine becoming fixed by adhesions, any fæcal extravasation which might occur could make its escape through the herniotomy wound which usually in these conditions was not closed. The fæcal fistula or artificial anus which resulted in most of these cases was generally left untreated, though attempts were made from time to time to close it, sometimes by drawing together the edges of the aperture and sometimes by the employment of Dupuytren's enterotome or other similar instrument. These attempts, however, were frequently, if not usually, failures and many of the patients who survived the gangrene of the bowel suffered from fæcal fistula for the remainder of their lives. The next advance in the treatment consisted in endeavours to close the adventitious opening into the bowel by an open operation; the abdominal wall was incised round the fæcal fistula and the adherent portions of bowel having been removed an intestinal anastomosis was performed. Since in this operation it was necessary to lay open the peritoneal cavity it was practically impossible to perform it with any reasonable chance of success until the advent of antiseptic surgery justified a surgeon i doing a laparotomy for a condition not endangering life At the present day two courses are open to the surgeon wh encounters gangrene of the bowel in the course of a herniotomy. He may follow the practice already indicated, cutting through the necrosed bowel wall and attaching the intestine to the edges of the wound by stitches, and he may leave to a subsequent occasion the task of re-establishing the continuity of the intestine; or he may at one and the same operation relieve the intestinal obstruction, excise the gangrenous bowel, and perform the intestinal anastomosis. It is at once obvious that the latter course is preferable if it be accompanied by no great increase of shock. For the risk of a second operation is avoided and this risk is by no means small in spite of elaborate antiseptic precautions. The choice of method must depend on the individual case. Should the general condition of the patient at the time of the herniotomy be fair it is far better to complete the operation at once by bringing together the ends of the bowel after removing the damaged gut. If, on the other hand, the patient be utterly collapsed from prolonged intestinal obstruction, then his condition may be such as not to justify any unnecessary prolongation of the operation, and the surgeon must for the time be satisfied with having relieved the obstruction. Fortunately, the statistics which have been published show that the cases in which the surgeon cannot complete his work in one operation form but a small minority, and in this opinion most surgeons will concur. There is an additional argument in favour of immediate intestinal anastomosis. In cases where the bowel involved is part of the jejunum much wasting may follow the establishment of an artificial anus on account of the small length of bowel from which absorption can occur, and thus the condition of the patient at the subsequent operation will hardly be better, and may be worse, than at the first. Taking all these facts into consideration it cannot be doubted that the completion of the intestinal anastomosis at the time of the herniotomy is far better than the operation in two sittings.

THE DISINFECTION OF SHIPS.

There is at present, fortunately, no epidemic of cholera or plague calling for the observance of special precautionary measures at our numerous ports, but the possibility of such an outbreak is always looming before the officers who are charged with the duty of guarding the channels through which infectious diseases are introduced. Many sources of danger would be eliminated by systematic disinfection of all goods which there is reason to suspect of playing the part of fomites, and this consideration applies not only to the diseases above mentioned but also to variola, anthrax, enteric fever, glanders, &c. The task of securing perfect protection against these disorders is of such magnitude that it is hardly within the scope of even the most enterprising of sanitary authorities, and no doubt the perfunctory way in which sterilisation is often attempted is due to the consciousness of inability to deal with all the needs of the case. To squirt a few pints of water tinted with potassium permanganate over the outside of a bale is not a proceeding to which a competent official can devote himself with conviction, except, perhaps, as to the futility of his efforts, although the pretence of disinfecting may serve some useful purpose by allaying popular excitement. The method of applying pieces of silver to the palm of the operator, which is in vogue at certain foreign ports, is simpler and possibly quite as efficient. To obtain the best results it is desirable to treat ships and cargoes before the latter are discharged, and this can only be done by means of gaseous disinfectants. Of these sulphur dioxide is practically the only ne which is at once cheap and serviceable, but where e aim is merely to free the vessel from rats or insects, as, r instance, in the case of plague or yellow fever, carbon oxide may prove of considerable value. At Marseilles Dr. acques, the medical officer of health, employs the latter as. It is mixed with the air of the holds and cabins to the xtent of 33 per cent. by means of the apparatus of Lafond, hich enables the gas to be rapidly liberated from the linders into which it has been compressed. Sulphur ioxide is a more effective germicide and, provided the bjection that it injures delicate fabrics or other articles omprised in the cargo can be met, it presents distinct dvantages. The difficulties in the way of using it seem to ave been overcome at Dunkirk and in a recent number of he *Revue d'Hygiène* MM. David and Durian have described he method successfully employed by them. A generating lant on Clayton's model, fitted up on a special barge, is rought alongside and the air of the various compartments f the vessel is impregnated with about 8 or 9 per cent. of lphur dioxide. After from two and a half to three hours he gas is pumped out and fresh air is admitted. Many essels have now been dealt with in this way without, it is aid, appreciable damage to the goods with which they have een loaded and the materials required are sufficiently nexpensive to render a wider adoption of the procedure asible.

REPORT ON PRISONS AND PRISONERS IN IRELAND.

THE twenty-fifth annual report of the General Prisons oard, Ireland, states that the number of criminal prisoners ommitted to the local prisons in Ireland during the year 902 was 32,395, being an increase of 309 over the number r 1901. Notwithstanding the slight increase in the number f committals the daily average number of prisoners in ustody during 1902 was 56 less than in the previous year wing to the greater proportion of short sentences. The entences of about 60 per cent. of the total number of con-cted local prisoners committed during the year were for erms not exceeding two weeks. The table of returns of onvicts—i.e., prisoners committed to sentences of penal ervitude—shows that a remarkable decrease is occurring ear by year in this class of cases. Thus the number of onvicts in custody on Jan. 1st was 464 in 1895, 397 in 1897, 32 in 1899, 292 in 1901, and 270 in 1902. On Jan. 1st, 903, the number of convicts had still further decreased to 49, which comprised 235 males and 14 females. As in revious years, about 50 per cent. of the convicted local risoners were committed for drunkenness. The committals uring 1902 include 194 "juveniles"—i.e., prisoners under 6 years of age. Of these, 21 were sent to reformatories nd industrial schools, 14 were discharged under the First Offenders Act, 95 were sentenced to terms of imprisonment arying from 24 hours to three months, five were fined or ound to keep the peace, and of the remainder, 54 were not convicted and five remained untried at the end of the year. The total number of convicted juveniles was 232 in 1900, 200 n 1901, and 135 in 1902. 51 prisoners were transferred from ocal prisons to lunatic asylums on being found insane Of hese, 11 were found to have been insane at the time the offence was committed, 32 were insane on reception, two were of doubtful sanity, and six were found to be of sound mind. Of the six cases where insanity developed temporarily while in prison, three cases were due to alcoholism. The conduct of the *prisoners has generally been good ; over* 93 per cent. of the local prisoners and over 68 per cent. of the convicts received no punishment during the year. Under the new Local Prison Rules the period of separate or solitary confinement for convicts has been reduced from nine months to six months for males and to four months for females, while the privileges of writing and receiving letters and visits have been increased. Eight cases were committed to the State Inebriate *Reformatory at Ennis during the year* —viz., three males and five females. The Board states that there is a prospect of certified inebriate reformatories for women being shortly established in Ireland. The extracts published in the report from returns made by governors, medical officers, and chaplains of local prisons show that while most useful and varied work is done by, and taught to, prisoners, religious and secular education are given, and that in many prisons facilities are given for the use of the prison libraries.

THE PREVALENCE OF SMALL-POX.

AN outbreak of small-pox in a Lincoln lodging-house recently made it necessary that prompt steps should be taken to isolate those who had been in contact with the diseased persons. As a result the Lincoln sanitary committee, with Dr. C. Harrison, the medical officer of health of the city, formed an isolation camp near the small-pox hospital on the West Common, and within 20 hours the whole of the "contacts" had been placed there, their clothes had been destroyed and others given them, and they had been disinfected and put under observation. *Stout wood floors* were put down in the camp, beds supplied, tables erected, a kitchen with cooking-range built, special isolation tents put up, and latrines provided, and the whole of the men from the lodging-house were induced to place themselves in this isolation camp. As a result the chances of the spread of the disease have been minimised and the patients are being properly attended. The Oldham town council has refused to accept a recommendation of the health committee that all persons who have been *exposed* to the infection of small-pox should be isolated during the incubation period.

DEATH CERTIFICATION AND INSPECTION OF THE BODY.

IN a recent article in THE LANCET attention was called to the fact that the law did not require the medical man granting a death certificate to have first inspected the body. At the conclusion of an inquest held at Stepney lately Mr. Wynne Baxter, the coroner for East London, called attention to an incident which pointed to a change of practice being desirable, but which at the same time supported the view that this cannot reasonably be expected to be made by the medical profession of its own initiative. A mother appears to have found her child in bed apparently dead and to have gone to the Children's Hospital, Shadwell, for a certificate as the child had been taken there twice by her and had been seen by one of the staff of the hospital. *This gentleman refused to give* a certificate of the cause of death, but informed the coroner of the case and on the coroner's officer making inquiry the child was found to be alive, the mother alleging that she had made a mistake. The coroner commented by saying that had the medical man given a certificate and had the life of the child been insured the money might have been obtained although the child was still alive, an observation the correctness of which is proved by a *case recently described in THE LANCET.* [illegible] juror then seems to have remarked that there [illegible]

[illegible]

to the coroner at the earliest opportunity would be pre-sumably what every coroner would [illegible]

[illegible]

these circumstances it is fortunate that a way has been found whereby statistical proof may still be given of the degree in which infantile protection against small-pox has been secured in recent as compared with former years by what remains on the statute-book of legal provision for the enforcement of primary vaccination. Mr. Power gives a new table (Appendix A, No. 3) in which "exempted infants" (by which term are presumably meant the offspring of so-called "conscientious objectors") are classed with infants "postponed," removed, and otherwise unaccounted for, so that comparison may be made on the percentage of births in each instance between periods of time before and after the enactment of the new law as to amounts of vaccination and of revaccination among infant populations.

From Mr. Power's prefatory remarks we extract the following summary of the above-mentioned table, which shows (1) that during the long period occupied in taking evidence by the Royal Commission on Vaccination rejections by parents of infantile vaccination steadily increased; (2) that such rejections culminated in 1898, in which year the new law was enacted; and (3) that after this date acceptance of infantile vaccination began generally, and for the most part largely, to increase. The appended summary illustrates these points for England and Wales as a whole and also for the metropolis in contrast with the remainder of the country:—

—	Percentage of births remaining unvaccinated in—			
	1893–97	1898	1899	1900
England and Wales	21·0	26·6	20·8	19·9
,, less metropolis ...	20·5	25·4	19·4	18·7
Metropolitan unions	23·9	34·4	28 7	26·8

Examination of these figures shows that, except as regards London, the year 1900 witnessed an increase in infantile vaccination as compared with the five years preceding the enactment of the new law. We further note that metropolis and provinces alike show a conspicuous improvement since 1898. Mr. Power tells us that, as compared with the rest of the country, London occupies a disadvantageous position in respect of the protection of its child population against small-pox. For though, he says, "the metropolis as a whole has exhibited since 1898 increasing acceptance of infantile vaccination, it remained in 1900, as regards percentage of births vaccinated, far behind the rest of the country. And further, London exhibited in 1900 an amount of abstention from vaccination greater even than in the five years antecedent to enactment of the new law. In 1893–97 abstention from vaccination in the metropolis amounted to 23·9 per cent. of the births; in 1900 the figures were 26·8 per cent."

Certain of the metropolitan unions are properly referred to as "offenders" for the sufficient reason that in the year 1900 defect of protection of infants against small-pox was due, not to "conscientious objection" on the part of parents, but to neglect by parents of the duties imposed upon them by the legislature, or to default of vaccination authorities and their officers in enforcement of the law. The chief offenders in this sense were the metropolitan unions of Mile End, Shoreditch, Bethnal Green, Poplar, Stepney, Hackney, St. Giles, St. George-in-the-East, St. Pancras, Holborn, and Southwark, in all of which unions the proportion of children remaining unprotected by vaccination was in excess of even the high average for London as a whole. Conspicuous among extra-metropolitan counties who are mentioned as responsible for serious neglect in the matter of infantile vaccination are Leicester, Bedford, Northampton, Derby, Wilts, Gloucester, and Radnor, all of which exhibit in 1900 proportions of unvaccinated births in excess of 30 per cent. The report contains a series of tables in which for each of the seven counties above mentioned the particular unions are set forth that have been responsible statistically for degradation of whole county areas in the matter of infant protection against small-pox. With respect to these Mr. Power continues: "But among the unions constituting counties thus unfavourably circumstanced to resist epidemic small-pox there is not observed, as is largely the case in the metropolis, uniform disregard of the law. Not all of these provincial unions have, as have many London unions, abstained alike from vaccination and from conscientious objection. In the provinces, and often within the limits of the same county, there are to be found unions liable to small-pox among their infants in diametrically opposite circumstances—unions, that is, in which parents have satisfied the law largely by obtaining exemption certificates, and unions in which parents, by connivance very often of the guardians, have been by way of disregarding the law altogether." The foregoing statements deliberately made to the President of the Local Government Board by the officer charged with the supervision of vaccination throughout the country is indeed a serious impeachment of the Poor-law authorities, who at present are statutorily appointed to protect the infantile population of England against the ravages of small-pox. We have, however, here still further support to the contention which we have repeatedly advanced in these columns and which we now once more repeat—that the Poor-law guardians are utterly unfit for the duties intrusted to them by the legislature and that the vaccination arrangements for the whole country, which have for their sole object the preservation of the public health, should be divorced entirely from Poor-law associations and relegated to the sanitary authorities, who have in other respects already proved themselves willing and able custodians of the health of the community.

We fully agree with Mr. Power in the opinion that the sole redeeming feature in the statistics which he is able to furnish with respect to this subject consists in the fact that since the passing of the Vaccination Act, which received the Royal assent in 1898, the proportion of infants remaining unvaccinated in England and Wales has decreased, in many cases considerably. From which it may, we trust, be inferred that fathers and mothers generally are now becoming better informed concerning the merits and demerits of the so-called vaccination controversy.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8390 births and 4575 deaths were registered during the week ending Sept. 12th. The annual rate of mortality in these towns, which had been 15·7, 16·0, and 15·7 per 1000 in the three preceding weeks, rose again to 15·8 per 1000 last week. In London the death-rate was 15 2 per 1000, while it averaged 16·1 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 5 0 in Bournemouth, 6·7 in Hornsey, 8·1 in Burton-on-Trent, 8·9 in Croydon and in Smethwick, 10·4 in Reading and in Swansea, 10·6 in King's Norton, and 10·8 in Walthamstow; the highest rates were 20·8 in Tynemouth, 20·9 in Hull, 22·0 in Sunderland, 22·1 in St. Helen's, 22·3 in Bootle, 22·5 in Middlesbrough, 23·0 in Grimsby, 24·1 in Stockton-on-Tees, 26·7 in Stockport, and 27·7 in Wigan. The 4575 deaths in these towns last week included 924 which were referred to the principal infectious diseases, against 1006, 1060, and 973 in the three preceding weeks; of these 924 deaths, 721 resulted from diarrhœa, 66 from whooping-cough, 37 from "fever" (principally enteric), 36 from scarlet fever, 35 from diphtheria, 28 from measles, and one from small-pox. No death from any of these diseases was registered last week in Croydon, Hastings, Bournemouth, Burton-on-Trent, King's Norton, Smethwick, Halifax, or West Hartlepool; while they caused the highest death-rates in West Ham, Aston Manor, Grimsby, Bootle, Wigan, Sheffield, Stockton-on-Tees, and Sunderland. The greatest proportional mortality from measles occurred in Ipswich and Warrington; from diphtheria in Tynemouth; from whooping-cough in Leyton, Aston Manor, and Merthyr Tydfil; from "fever" in Bolton; and from diarrhœa in West Ham, Grimsby, Bootle, Wigan, Burnley, Sheffield, Hull, Stockon-on-Tees, Sunderland, and Rhondda. The mortality from scarlet fever showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Liverpool, but not one in any other of the large towns. The Metropolitan Asylums hospitals contained 46 small-pox patients on Saturday last, the 12th inst., against 45, 52, and 57 on the three preceding Saturdays; nine new cases were admitted during last week, against 13, 11, and six in the three preceding weeks. The number of scarlet fever cases under treatment in these hospitals and in the ndon Fever Hospital, which had been 1797, 1774, and 36 at the end of the three preceding weeks, had declined ain to 1772 at the end of last week; 212 new cases were nitted during the week, against 225, 199, and 229 in the ee preceding weeks. The deaths referred to diseases of respiratory organs in London, which had been 120, l, and 123 in the three preceding weeks, declined last ek to 122, and were slightly below the number in the responding period of last year. The causes of 53, or per cent., of the deaths in the 76 large towns last week re not certified either by a registered medical practitioner by a coroner. All the causes of death were duly certified West Ham, Bristol, Leicester, Nottingham, Bradford, l in 42 other smaller towns; the largest proportions of certified deaths last week were registered in Leyton, rrington, Rochdale, Halifax, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal otch towns, which had been 15·1, 15·1, and 16 6 per 1000 the three preceding weeks, declined again to 14 4 per 1000 ring the week ending Sept. 12th and was 1·4 per 1000 ow the mean rate during the same period in the 76 ge English towns. The rates in the eight Scotch ns ranged from 8·5 in Leith and 12·7 in Edinburgh, 18·9 in Paisley and 20·1 in Perth. The 470 deaths these towns included 52 which were referred to diarrhœa, e to whooping-cough, seven to "fever," six to measles, o to diphtheria, and one to scarlet fever, but not one small-pox. In all, 77 deaths resulted from these ncipal infectious diseases last week, against 96, 90, and in the three preceding weeks. These 77 deaths were al to an annual rate of 2 4 per 1000, which was 0·8 per 0 below the mean rate last week from the same diseases the 76 large English towns. The fatal cases of diarrhœa, ich had been 65, 58, and 58 in the three preceding weeks, ther declined last week to 52, of which 21 occurred in sgow, 10 in Dundee, nine in Edinburgh, six in Aberdeen, ee in Greenock, and two in Paisley. The deaths from ooping cough, which had been nine, seven, and nine in three preceding weeks, were again nine last week, and luded seven in Glasgow. The fatal cases of "fever," ich had been four and ten in the two preceding weeks, lined again last week to seven, of which four were istered in Dundee and three in Glasgow. The deaths m measles, which had been six, eight, and four in the ee preceding weeks, rose again to six last week and inded five in Glasgow. The deaths referred to diseases of respiratory organs in these towns, which had been 51, 51, l 54 in the three preceding weeks, declined again last ek to 52, and were 30 below the number in the corrending period of last year. The caus of 13, or nearly er cent , of the deaths registered in th eight towns last ek were not certified.

HEALTH OF DUBLIN

The death-rate in Dublin, which had been 22·8, 23·1, and 4 per 1000 in the three preceding weeks, rose again to 7 per 1000 during the week ending Sept 12th. During past four weeks the death-rate has averaged 20 0 per 0, the rates during the same period being 14 5 in London d 13 8 in Edinburgh. The 136 deaths of persons belonging Dublin registered during the week under notice showed an cess of 24 over the number in the preceding week and luded ten which were referred to the principal infectious eases, against 12, 18, and 16 in the three preceding eks; of these, seven resulted from diarrhœa and one h from diphtheria, from whooping-cough, and from fever," but not one from small-pox, measles, or scarlet er. These ten deaths were equal to an annual rate 1·4 per 1000, the death-rates last week from the ncipal infectious diseases being 3·2 in London and 1·8 Edinburgh. The fatal cases of diarrhœa, which had been , nine, and ten in the three preceding weeks, declined ain last week to seven The 136 deaths in Dublin last ek included 29 of children under one year of age and of persons aged 60 years and upwards; the deaths of ants corresponded with the number in the preceding week, ile those of elderly persons showed a marked increase ne inquests cases and four deaths from violence were gistered, and 46, or about one-third, of the deaths occurred public institutions. The causes of nine, or nearly 7 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 5·5 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 6·0, 6·0, and 6·4 per 1000 respectively. The rates were considerably below the average in Chelsea, the City of Westminster, Hampstead, Camberwell, Greenwich, and Lewisham, while they showed the largest excess in St. Marylebone, Hackney, Finsbury, Stepney, and Deptford. The prevalence of small-pox showed a marked diminution from that recorded during July; of the 39 cases notified last month 15 belonged to Lambeth, nine to Battersea, six to St. Pancras, and three to the City of Westminster. The Metropolitan Asylums hospitals contained 57 small-pox patients at the end of August, against 60, 57, and 66 at the end of the three preceding months; the weekly admissions averaged nine last month, against 13, 12, and 15 in the three preceding months. Scarlet fever was slightly less prevalent during August than it had been in the preceding month; the greatest proportional prevalence of this disease occurred in Paddington, St. Marylebone, Finsbury, the City of London, Stepney, and Deptford. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1738, 1614, and 1697 at the end of the three preceding months, had risen again to 1754 at the end of last month; the weekly admissions averaged 211 during August, against 226, 195, and 234 in the three preceding months. The prevalence of diphtheria showed a considerable decline last month as compared with other recent months; among the various metropolitan boroughs this disease was proportionally most prevalent in St. Pancras, Hackney, Finsbury, Poplar, Deptford, and Greenwich. There were 716 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 808, 781, and 840 at the end of the three preceding months; the weekly admissions averaged 94, against 120, 119, and 130 in the three preceding months. The prevalence of enteric fever was considerably in excess of that recorded in the preceding month; the greatest proportional prevalence of this disease occurred in Hampstead, Stoke Newington, Hackney, the City of London, Stepney, and Greenwich. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 51, 88, and 119 at the end of the three preceding months, had further risen to 172 at the end of last month; the weekly admissions averaged 27, against ten, 17, and 18 in the three preceding months. Erysipelas was proportionally most prevalent in St Marylebone, Stoke Newington, Holborn, Bethnal Green, Southwark, and Bermondsey. The 14 cases of puerperal fever notified last month included three in Fulham, three in Battersea, and two in Hackney.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending August 29th the deaths of 4779 persons belonging to London were registered; these deaths were equal to an annual rate of 13·5 per 1000, against 14·2, 12·9, and 12·5 per 1000 respectively in the three preceding months. The lowest death-rates in London last month were 8·7 in Hampstead, 10 1 in Lewisham, 10·8 in Stoke Newington, 11 0 in Wandsworth, and 11·2 in Woolwich; the highest rates were 15·5 in Bethnal Green, 16·3 in Southwark, 16 4 in Bermondsey, 18·2 in Stepney, 19·6 in Finsbury, and 21·2 in Shoreditch. The 4779 deaths from all causes included 827 which were referred to the principal infectious diseases; of these, 81 resulted from measles, 31 from scarlet fever, 40 from diphtheria, 55 from whooping-cough, 19 from enteric fever, two from simple continued fever, 599 from diarrhœa, and not one from either small-pox or t

these i

City of

the City

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1903.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,613,812	39	903	474	—	194	7	14	313	—	1944	5·5	—	81	31	40	55	—	19	2	599	827	2·3	4779	13·5	144
West Districts.																										
Paddington	146,032	—	44	6	—	3	—	—	9	—	62	5·5	—	2	2	1	1	—	—	—	10	16	1·4	141	12·6	118
Kensington	178,409	—	39	18	—	6	—	—	11	—	74	5·4	—	4	3	3	2	—	—	—	29	41	3·0	173	12·6	203
Hammersmith	115,803	1	23	6	—	5	1		6	—	43	4·8	—	—	—	—	—	—	—	—	24	24	2·7	102	11·5	144
Fulham	147,780	—	29	19	—	6	—	3	8	—	65	5·7	—	3	1	1	—	—	2	—	54	61	5·4	169	14·9	192
Chelsea	74,169	—	13	4	—	—	—	—	5	—	22	3·9	—	—	—	—	—	—	—	—	5	5	0·9	75	13·2	148
City of Westminster	179,052	3	17	9	—	6	—	—	7	—	42	3·1	—	5	—	—	2	—	—	—	7	14	1·0	159	11·6	139
North Districts.																										
St. Marylebone	131,234	—	38	17	—	1	1	—	16	—	73	7·3	—	1	1	2	—	—	—	2	9	15	1·5	137	13·6	87
Hampstead	85,197	—	13	2	—	6	—	—	4	—	25	3·8	—	—	—	—	1	—	1	—	—	2	0·3	57	8·7	55
St. Pancras	235,716	6	36	38	—	6	—	—	18	—	104	5·8	—	8	3	2	4	—	1	—	20	38	2·1	265	14·7	156
Islington	339,137	1	72	29	—	13	—	—	12	—	127	4·9	—	5	1	2	5	—	—	—	12	25	1·0	320	12·3	116
Stoke Newington	52,069	—	4	3	—	4	—	1	6	—	18	4·5	—	—	—	1	—	—	1	—	1	3	0·8	43	10·8	77
Hackney	224,082	—	47	37	—	51	3	2	18	—	158	9·2	—	5	1	4	2	—	3	—	30	45	2·6	221	12·9	143
Central Districts.																										
Holborn	57,845	—	14	2	—	2	—	—	9	—	27	6·1	—	1	—	—	1	—	—	—	3	5	1·1	56	12·6	66
Finsbury	99,717	—	33	13	—	4	—	—	4	—	54	7·1	—	7	2	—	1	—	1	—	14	25	3·3	160	19·6	152
City of London	24,539	—	8	2	—	[illegible]	—	—	1	—	13	6·9	—	—	—	—	—	—	—	—	1	1	0·5	28	14·9	200
East Districts.																										
Shoreditch	117,513	—	20	10	[illegible]	[illegible]	—	—	7	—	41	4·5	—	3	1	1	4	—	—	—	57	66	7·3	191	21·2	305
Bethnal Green	130,028	1	33	13	[illegible]	[illegible]	—	1	17	—	67	6·7	—	1	1	4	1	—	—	—	20	27	2·7	155	15·5	142
Stepney	302,153	1	82	36	—	19	—	1	23	—	162	7·0	—	10	3	2	11	—	1	—	66	93	4·0	421	18·2	198
Poplar	169,550	1	37	31	—	5	—	—	14	—	88	6·8	—	3	1	4	—	—	1	—	31	40	3·1	168	14·5	163
South Districts.																										
Southwark	207,369	—	39	14	—	7	—	—	20	—	80	5·0	—	3	—	2	1	—	1	—	35	42	2·6	260	16·3	147
Bermondsey	129,801	—	25	15	—	5	—	1	15	—	61	6·1	—	3	2	—	4	—	1	—	19	29	2·9	163	16·4	168
Lambeth	307,711	15	48	27	—	7	1	—	18	—	116	4·9	—	1	2	1	2	—	1	—	36	43	1·8	278	11·8	132
Battersea	173,422	9	32	15	—	3	—	3	9	—	71	5·3	—	7	1	1	3	—	1	—	29	42	3·2	169	12·7	144
Wandsworth	249,678	—	47	30	—	4	—	—	17	—	98	5·1	—	2	1	2	6	—	1	—	18	30	1·6	211	11·0	109
Camberwell	265,562	1	37	12	—	8	—	1	17	—	76	3·7	—	5	3	—	1	—	2	—	23	34	1·7	235	11·5	114
Deptford	112,537	—	30	27	—	2	—	—	7	—	68	7·6	—	1	2	3	1	—	—	—	9	16	1·9	99	11·5	123
Greenwich	99,824	—	3	15	—	4	—	—	4	—	26	3·4	—	1	—	—	1	—	—	—	22	24	3·1	103	13·4	191
Lewisham	136,405	—	14	11	—	3	—	—	2	—	30	2·9	—	—	—	2	—	—	1	—	11	14	1·3	106	10·1	76
Woolwich	121,478	—	28	13	—	4	1	—	9	—	63	6·7	—	—	—	2	1	—	—	—	4	7	0·8	104	11·2	88
Port of London	—	—	—	—	—	2	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Kensington, Fulham, Finsbury, Shoreditch, Stepney, Poplar, Battersea, and Greenwich. The 81 deaths from measles were 75 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in the City of Westminster, St. Pancras, Finsbury, Shoreditch, Stepney, and Battersea. The 31 fatal cases of scarlet fever showed a decline of 36 from the average number in [illegible] ten preceding years; the [illegible] this disease occurred in [illegible] Bermondsey, and Deptfo [illegible] were less than one-third of the corrected average number; this disease was proportionally most fatal in Kensington, Hackney, Bethnal Green, Poplar, Deptford, and Woolwich. The 55 fatal cases of whooping-cough showed a decline of 101 from the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the highest proportional fatality of this disease was recorded in Shoreditch, Stepney, Bermondsey, Battersea, and Wandsworth. The 21 deaths referred to "fever" were 32 below the corrected average number; the "fever" death-rate was highest in Fulham, St. Marylebone, Stoke Newington, and Hackney. The 599 fatal cases of diarrhœa were rather less than half of the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Fulham, Shoreditch, Stepney, and Greenwich. In conclusion, it may be stated that the aggregate mortality in London last month from these infectious diseases was nearly 55 per cent. below the average.

Infant mort [illegible] sured by the proportion of [illegible] year of age registered t [illegible] The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Stoke Newington, Holborn, Lewisham, and Woolwich; and the highest rates in Kensington, Fulham, the City of London, Shoreditch, Stepney, and Greenwich.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced:—Fleet Surgeons: W. H. Patterson to the *Dædalus* (dated Sept. 9th, 1903); H. Meikle to the *President*, lent to the *Spartan* (dated Sept. 12th, 1903); and C. W. Sharples to the *President*, additi [illegible] l Navy Rendezvous. [illegible] *mpton*, for the *Cle* [illegible] (dated Sept. 9th, 1903), and R. Miller to the *President*, for three months' course of hospital study (dated Sept. 15th, 1903); G. A. Dreaper to the *Fox*; E. Corcoran to the *Boscawen*, additional, for Portland Sick Quarters. Surgeons: R. D. Jameson to the *Racer*, for Royal Navy Cadets' Sick Quarters, Osborne (dated Sept. 9th, 1903); and A. Davidson to the *Partridge* (dated Sept. 10th, 1903).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. L. Chester to be Colonel, vice Colonel R. Exham, retired (dated August 19th, 1903) Major G. Moir will proceed for service in Madras; Captain W. G. Beyts will proceed for service in the Punjab; Captain G. A. Moore will proceed for service in the Punjab; Captain N. H. Ross has been transferred from the Poona District to the Mhow District; Lieutenant J. M. H. Conway will proceed to India for duty. Captain H. Herrick has been appointed to the command of the Station Hospital, Satara. Captain A. Crichton Lupton is on temporary duty with the Coldstream Guards, pending embarkation for service abroad. Colonel W. McWatters has resigned the post of Principal Medical Officer, Southern District. Major J. R. Mallins has joined at Woolwich. Lieutenant R. B. Black is seconded for service with the Egyptian Army.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant William H Vickery to be Surgeon-Captain (dated Sept. 12th, 1903). The promotion of Surgeon-Lieutenant-Colonel E. Luke Freer, V.D., is antedated to Dec. 24th, 1899.

ROYAL ARMY MEDICAL CORPS (MILITIA).

Lieutenant H. Fox is seconded for service under the Foreign Office (dated August 13th, 1903).

INDIAN MEDICAL SERVICE.

[illegible] Houston, William David Acheson Keys, George Joseph Grafton Young, James Good, Alexander Chalmers, William Gavin Hamilton, and Samuel Robert Godkin.

INDIAN MEDICAL SERVICE, BENGAL

Lieutenant-Colonel Zalnoor Alee Ahmed, M.D. Glasg., retires from the service (dated July 19th, 1903) and Lieutenant-Colonel Sorabshaw Hormasji Dantra, M.D. Aberd., retires from the service (dated July 10th, 1903).

VOLUNTEER CORPS.

Royal Engineers: 1st Lancashire: Surgeon-Lieutenant H. Halton to be Surgeon-Captain (dated Sept. 12th, 1903).

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

5th London: Surgeon-Captain W. N. Evans, from 1st London Volunteer Infantry Brigade Bearer Company, to be Captain (dated Sept. 12th, 1903).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The following announcement is substituted for that which appeared in the *London Gazette* of June 26th, 1903, under the heading "Gordon Volunteer Infantry Brigade Bearer Company":—The Aberdeen Company: The undermentioned gentlemen to be Lieutenants: James Smart (dated June 27th, 1903) and John Wallace Milne (dated June 27th, 1903). The transfer of Lieutenant F. Kelly from the Royal Army Medical Corps (Volunteers) the Aberdeen Company, to the Gordon Volunteer Infantry Brigade Bearer Company, which was announced in the *London Gazette* of August 14th, 1903, is cancelled. The Woolwich Companies: Lieutenant A. H. Minton to be Captain (dated Sept. 12th, 1903).

Under the new order which provides for a special sanitary officer at the headquarters of each military district Major C. J. W. Tatham, R.A.M.C., has been appointed in that capacity to Devonport.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—May I trespass upon your space to draw attention to what seems to me to be one of the important lessons to be drawn from the present keen interest which is being manifested in the subject of the hereditary nature of alcoholism? Whatever may be the views held by particular individuals as to the opinions of Dr. Archdall Reid, expressed in his books and in the present correspondence in THE LANCET, there can be but one opinion as to the enormous importance of the subject and the thanks of the profession are due to Dr. Reid for forcing it upon our attention.

I do not wish to intrude at present in the precise point under discussion; I rather wish to note one of the sidelights of the question, which I think should be attended to in the future. It is impossible to have read the criticisms of Dr. Reid's paper at the recent meeting of the British Medical Association and the subsequent correspondence in THE LANCET without being struck with the extraordinary variety of opinions held upon the biological aspect of the matter. One is forced to the conclusion that heredity and evolution are somewhat nebulous terms to many, and perhaps it is not easy to be very precise in the meanings attached to the former at any rate. The real reason for this is that no systematic attempt is made to teach these subjects in the medical curriculum. I am, of course, aware that every student learns more or less of such problems in biology, but he does so *during his first session*, when he is frequently a mere schoolboy, and whatever little knowledge is then gained is speedily forgotten in the more practical business of the strictly professional subjects for his subsequent examinations. The same remark applies to embryology. How many men on the day they take their qualification or degree have anything but the vaguest notion of modern scientific research and thought on such subjects as heredity, immunity, and evolution? From personal experience in teaching I should say the number is extremely few. The fault is not the student's; it is simply that he is not taught. And yet nothing is more certain than that the future of medicine is becoming more and more a biological matter and that it is to biological research we must look for the explanation of the most important problems we are called upon to face.

What is the remedy? The defect is in the curricula and the remedy must be applied there. My own opinion is that instead of compelling the student to acquire an enormous number of facts in natural history and botany, which are of no earthly use to him afterwards, a course of lectures on the great *problems* of biology should be substituted, and these lectures should have a special reference to the connexion of these problems with disease. Instead of dismissing biology at the end of the first session with a mere smattering of superficial knowledge, defer the consideration of these important questions until the student has become familiar with some of the facts of medicine and then teach him thoroughly what is known as to the nature of these biological phenomena. In that way he will come to have a really scientific conception of medical science and the knowledge will come to him at a time when its bearing on medicine will be evident. Under the present system these great questions are dealt with too soon or not at all and the student forgets them as soon as possible without ever realising anything of their true significance. Is it any wonder that after some years in medical practice the average man is found to know little or nothing about the most vital questions of his own profession and science?

It cannot be much satisfaction to professors and lecturers on botany and natural history to have to give an elaborate course of lectures to a number of students just through their preliminary examination, knowing, as they must do, that the men have no chance of getting a real grasp of the subject. It would be a real satisfaction to these same teachers to teach the great principles of these subjects to advanced students who could appreciate the bearing of them upon their own special studies. In such a system the practitioner would recognise that the problems of heredity, immunity, and evolution, as applied to disease, faced him at every turn of his work and were indeed the most fascinating of the problems which engaged his attention.

I am, Sirs, yours faithfully,
GERALD R. LEIGHTON, M.D. Edin.,
Professor of Pathology, Royal Veterinary College, Edinburgh.
Sept. 7th, 1903.

To the Editors of THE LANCET.

SIRS,—I deplored in my recent letter that so many of Dr. Archdall Reid's opponents should by their remarks show that they were quite ignorant of that author's works. Amongst these must, from the sixth and seventh paragraphs of his letter of August 29th, be classed Dr. Charles Mercier. Had this gentleman read Dr. Reid's "Alcoholism" these two paragraphs would, I suspect, have never been penned. Surely the least that can be asked of Dr. Mercier is that at any rate he should first make himself acquainted with the works of the gentleman whose views he is apparently so anxious to belittle.

Dr. Mercier's conclusion that Dr. H. Laing Gordon and I support Dr. Reid's views because we are Scotsmen is quite on a par with other of his scientific deductions.

I am, Sirs, yours faithfully,
Sept. 8th, 1903. A. MEARNS FRASER.

To the Editors of THE LANCET.

SIRS,—There are several matters in Dr. Niven's letter dated Sept. 3rd[1] which I should like, with your permission, to notice next week; but as to one matter Dr. Niven makes an appeal in terms so solemn, so urgent, so piteous, that it would be discourteous to postpone the answer, especially as Dr. Niven makes no secret of his opinion that I have no answer to give and that no answer is possible. But for Dr. Niven's impassioned appeal I should certainly not have entered upon this subject, for I think it unlikely that you would care to occupy your correspondence columns with an exposition of the rudiments of biology. If I had to explain the matter to a biology class I should tell them to clean their slates (but not on their pinafores) and take down the following statement:—

Every sexually produced organism is the offspring of two parents. One of these parents is male and is called the father, the other is female and is called the mother. In so far as the characters of the father and mother are alike, the corresponding characters of the offspring almost always reproduce those of both the parents. For instance, if the father and mother each have four legs and one tail the offspring will almost certainly possess four legs and one tail. But as to those characters in which the parents differ, the corresponding characters of the offspring obviously cannot faithfully reproduce those of both parents, and in such cases the characters of the offspring may follow one of several courses. In respect to these characters (those in which the parents differ) the characters of the offspring may (1) resemble either parent to the exclusion of the other (for instance, if the father be white and the mother black the offspring may be wholly white or wholly black); or (2) the offspring may at one time of life resemble one parent and at another the other (it may, for instance, be born white and subsequently turn black); or (3) the differing characters of the parents may be mixed in the offspring, as when the progeny of a white and a black parent is piebald; or (4) the offspring may present, with respect to these characters, a mean or average between the two parents, as though the differing characters were intimately blended together, as when the progeny of a white father and a black mother is a mulatto. Now apply this doctrine to the case of the offspring of a drunken father. The father is, *ex hypothesi*, a drunkard, but one of the counteracting circumstances which Dr. Niven demands, and of whose existence he is incredulous, is the circumstance that the offspring has *two* parents! and the mother may not be a drunkard. She may have as great an abhorrence of drink as Dr. Niven has of a neo-Lamarckian, whatever that may be, or as I have of a misquotation. In such a case the offspring may inherit solely the father's propensity for drink or solely the abhorrence of the mother; or he may take after his father at one time of life and after his mother at another, or he may have their qualities blended or averaged and have just a healthy relish for a glass of beer after a long day in the hayfield.

It is perhaps too much to expect that Dr. Niven's researches in heredity, which appear to have been of no very long standing, should have revealed to him a fact so obscure, so recondite, and so seldom recognised as that every child has a mother as well as a father; but if he perseveres he will in time come across another counteracting circumstance, to which I first called attention many years ago, which may save the offspring from being a drunkard and the race from extinction even if both his parents are drunkards. This is the remarkable and powerful tendency that the members of every race evince, in ordinary circumstances, to return to the norm from which their parents have deviated. The children of giants are never so tall nor are the children of dwarfs so short as their parents. This tendency has been investigated by Professor Karl Pearson in an immense number of cases and has by him been measured and expressed in figures as to certain characters. As he very aptly and justly says, "In the tenth generation a man has 1024 tenth *great-grandparents*. He is eventually the product of a population of this size, and their mean can hardly differ from that of the general population. It is the heavy weight of this mediocre ancestry which causes the son of an exceptional father to regress towards the general population mean; it is the balance of this sturdy commonplaceness which enables the son of a degenerate father to escape the whole burden of the parental ill."

In your next issue I expect to see that Dr. Niven credits me with the belief that every offspring has three parents, or that giraffes lengthen their necks by stretching, or that parents are produced by their own offspring, or something equally absurd. I appeal, therefore, to your readers to take the beliefs of Dr. Niven's opponents, not from what Dr. Niven says, but from the statements of those who best know what these beliefs are—the opponents themselves.

I am, Sirs, yours faithfully,
Catford, Sept. 14th, 1903. CHARLES MERCIER.

To the Editors of THE LANCET.

SIRS,—Will you allow me to apologise to Dr. J. Wiglesworth? I have wrongly represented him as saying that parental drinking causes filial intemperance. Need I say that this was not willingly done. I remember after reading his first letter turning to "The Foundation of Death" to see how far his views agreed with those of other alienists—e.g., Krafft Ebing—and must, I suppose, in the process have mixed their opinions. I am deeply grieved and I can only say I am very sorry. I should have liked to be able to leave the above standing by itself. [illegible] represents me as saying that I [illegible] belief that acquired traits are [illegible] did. I believe if Dr. Wiglesworth will again read the passage where he thinks I make this charge he will at least do me the justice to say that he [illegible]

---

[1] THE LANCET, Sept. 12th, p. 786.

[illegible] I use the word [illegible] ık that I thereby [illegible] I think that Dr. Wiglesworth loses any. In trying to account for his belief that parental drinking causes filial mental instability, Dr. Wiglesworth represents the germ cell as containing or being composed of numbers of molecules which subserve the development of the various tissues of the body; those for the cerebral centres being the latest formed in time, and therefore more unstable than the others, suffer first from any injurious agent. I stated in my reply that an alteration such as this was simply a variation, or rather that the offspring varied in a *definite* direction; also as the cerebral centres suffered first it did not seem to matter much what term we used. I thought, and I do think, that I was justified in saying a variation was the result and that Dr. Wiglesworth would be in perfect agreement with me, for in THE LANCET of August 1st, p. 340, he says: "If as a result of the development of the germ cells in a vitiated nutrient medium the child resulting therefrom is modified in any direction, however slight, then a definite germinal variation has been produced through the agency of the poison in question." If a variation is produced I can only look upon the resulting offspring as having varied in a definite or special direction. There is, however, no need to labour the point. It is a matter of indifference to me what qualification is used—i.e., whether the influence be general, special, or definite. All I insist on is that a variation has been produced, and variations, as we know, tend to accumulate and to be transmitted. The Darwinian doctrine, so far as I understand it, depends upon (1) increase of organisms in a geometrical ratio; (2) struggle for existence; and (3) variation. Let anyone destroy all that is meant by variation and for me Darwinism is destroyed.

May I add to Dr. Wiglesworth's summary of this discussion that only beliefs have been adduced to support the contention that parental intemperance causes filial mental instability. These have been called in question and demands have been made for proof but without success. It seems that all that we have heard in the past (I am not now referring to Dr. Wiglesworth) as to the transmission of this or that acquired trait has simply been so much chatter. Dr. Wiglesworth has propounded a new theory of evolution; he has also endeavoured to show *how* poisons can produce variations in germ cells from which offspring arise. If he can prove the existence of his molecules and also prove the rôle he makes them play, he will have accomplished an astounding piece of work, the results of which will be far-reaching.

In THE LANCET of Sept. 5th, p. 731, Dr. O. Mercier, in one of his characteristic letters, condescends to indicate one of the "counteracting circumstances which would prevent the giraffe's neck growing as high as the cross of St. Paul's." He has "ballyragged" others for not defining their terms and for not giving proof of their assertions, and yet here we have Dr. Mercier himself in delightful simplicity asserting that the neck would crush the animal. Is this not a flourish without proof? I wonder if Dr. Mercier has ever heard of the correlation of growth or of the co-adaptive variation of all the structures that subserve any given condition? Is there anything more certain than that co-adaptive parts vary together and as natural selection has developed in the structures an immense power of varying under fit stimulation it is absolutely certain that Dr. Mercier, with all his fancied precision, is wrong. Mr Darwin, in "Animals and Plants," vol. ii., p. 329, quotes from Mr. Herbert Spencer the case of the "Irish elk with its gigantic horns over 100 pounds in weight" and refers to the "coördinated structures necessary—namely, a thickened skull, strengthened cervical vertebræ, with stronger ligaments, enlarged dorsal vertebræ, powerful fore-legs and feet," &c., indeed, there is hardly one structure in the body capable of varying that would not vary. If it be argued that it would be impossible for all these structures to vary favourably in one individual and that therefore there would be no selection, it must be remembered that superiority in one quality is commonly associated with superiority in other qualities and that selection depends on a general average superiority. Now, suppose a giraffe develops a longer neck under a given amount of stimulation than its progenitors did with the same amount of stimulation, then an extra strain is put on all co-adaptive structures and in them also a proportionate increase in size would result. The length of the neck therefore would depend upon the inborn power to vary under stimulation and the amount of fit stimulation to which it was submitted. As this is so and as the later development of nearly all structures in higher animals is an acquirement, and as what is transmitted is the power to vary in response to stimulation, it follows that there is hardly any limit to which a structure might not grow if required by natural selection. Thus, if it were required, say, for browsing purposes that the head of the giraffe should reach the top of the cross at St. Paul's there is absolutely no reason why it should not do so, and Dr. Mercier cannot disprove it.

Dr. Mercier defines a variation "as a difference between parent and offspring not due to post-natal action of the environment on the offspring." Here, again, there is no definition of terms, but I suppose he means by post-natal what it would mean in medical jurisprudence—live-birth. How delightfully simple and clear everything seems after one gets everything explained. How long must this truth have been "jumping up and hitting every Darwinian in the face" and they did not see it or feel it! Had they only been logicians! Just fancy how easy it all is now! If a man takes small-pox it is an acquirement, but if a child is born with the rash fully developed on him it is a variation; if a man has his arm amputated it is an acquirement, but an intra-uterine amputation is a variation; if a man has an eye gouged out it is an acquirement, but if a child has an eye dislocated by unskilfully applied midwifery forceps it is a variation. Leaving this, however, may I point out to Dr. Mercier that "the whole controversy is" *not* "on the question whether this difference has its root in the original constitution of the germ plasm or whether it may not be due to the action on the germ plasm of its environment."

As regards the legs of the kittens Dr. Mercier says that he used no argument and nothing is more distasteful to him after an argument than a mis-statement of fact. He says that I stated a universal negative and that his simple affirmative destroys it. Well, but does it? Two things which differ in every detail are in reality exactly the same. I am sure that no one but a logician like Dr. Mercier could have discovered that.

I have confined my reply to the things to which I might legitimately claim a right to reply and I may say, in conclusion, though it is always risky to give hostages to futurity, that I am confident that at the end of this controversy I shall have a little more scalp and a little more hair on that scalp left than Dr. Mercier will.

I am, Sirs, yours faithfully,

Liverpool, Sept. 13th, 1903. O. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—Dr. Reid repeats his argument, taking the case of malaria as an illustration, without meeting my objection. I can only suppose that my former letter was obscure. May I therefore explain precisely what I meant? My whole point was to show that "the mean of the whole race," as Dr. Reid puts it, is not necessarily lowered by the influence of alcohol or disease, *even if it does cause degeneracy*. It would be so if the dead counted, but they do not for purposes of reproduction. When a disease—malaria, for instance—attacks a community the elimination of the unfit by death may surely more than counterbalance the degeneracy of the survivors, leaving a higher mean vitality in spite of the injury to them individually. May I give an arithmetical illustration to make it clear? Take a few numbers at random to represent the vitality of individuals—3, 6, 11, 1, 13, 2. The average of these is 6. Subtract 3 from each to represent a diminution of vitality. Three of the numbers fall to zero, illustrating elimination of the unfit, and no longer count. We have left 3, 8, 10, the average of which is 7—higher than b [illegible] ubtracted 3 from each! The conclusion to my mind is therefore irresistible that it is at least possible for degeneracy and elimination working together to raise the mean vitality of the whole race and the more virulent the disease the more rapid and complete its evolution and conquest of that disease—not, as Dr. Reid says, its degeneration and extinction.

I am, Sirs, yours faithfully,

Sept. 12th, 1903. C. E. SCUDAMORE.

To the Editors of THE LANCET.

SIRS,—Dr. C. Mercier has hardly grasped the spirit of my apology. I imagine any acquaintance with a sense of humour will enlighten him. By turning to the communication which opened this discussion the readers of THE LANCET will be able to gauge the amount of justification for all this indignation—for these quotations from Shakespeare, these references to Almighty God and worms and black-beetles, and so forth. It is perhaps necessary to add that Dr. Mercier had not entered my thoughts when I wrote it. If he really insists on knowing why I treat him so "haughtily" I suppose I must inform him, however much I may regret the necessity. It is because, in a scientific discussion, he has evaded the real points at issue and committed the unpardonable offence of limiting himself almost solely to small personalities and verbal quibbles. One need not go beyond his last letter to prove this. He denies that he asserted that "alcohol diseases, &c., affecting parents cause offspring to be degenerate." He is quite right, but it is remarkable that he should call attention to the fact. What, then, is his position in this discussion? Has he come in solely to chop logic and for the laudable purposes I have indicated? After a dissertation on courtesy and dignity he proceeds to explain that he has scalped Dr. C. R. Niven and that Dr. H. Laing Gordon and Dr. A. Mearns Fraser agree with me only because we are all Scots. Much space in his letter is occupied by what, for his own sake, I can only hope is an intentional misreading of very plain meanings. Thus, when Dr. Niven stated that no two individuals were exactly alike in any particular he retorted that kittens are alike in having four legs and now asserts triumphantly that he has thereby destroyed Dr. Niven's universal negative. I am surprised he did not add that kittens are alike in being kittens. When I wrote of South Europeans and West Africans as being very temperate the context showed clearly that I was alluding to the inhabitants of countries where alcohol was particularly abundant—the wine and toddy countries. He retorts with a list of all the peoples from Lisbon to Constantinople and Tangiers to Cape Town. I spoke of a patent fact. He announces that by patent I mean closed and asks for information which would about fill an issue of THE LANCET and which I have given elsewhere. I raised a discussion by declaring that medical men are mistaken in supposing that the effects of disease are transmissible and gave my reasons at elaborate length. He elegantly adjures me to abandon "storming, hectoring, and ballyragging," and to try reasoning. No one attempts to refute those reasons, least of all Dr. Mercier, to whom, it appears, argument is abhorrent. His luminous retort is that I have committed a fault in logic. It seems that when I declare a thing to be true and no one is able apparently to controvert me I must not assume it is true. That is *petitio principii.* It is unnecessary to multiply examples, but I am now forced to explain to Dr. Mercier that if he cannot perceive that these ignominious personalities, these pretended misunderstandings of plain meanings, these merely verbal carpings, are not infinitely petty and irrelevant, I can very clearly. I shall be glad to deal with any scientific points that he may raise; indeed, I propose to deal immediately with two or three of these, but in the future I shall leave all questions as to my "haughtiness" and the like alone. I will only add that if he desires to bring my pride to a fall he has but to defeat me on real issues. He has only to prove that any influences, no matter what—disease, alcohol, privation, anything—acting on parents are causes of variations in offspring to render my position humiliating and absurd. After all this is only a preliminary skirmish. I hope before long to call the attention of the readers of THE LANCET to questions of wider interest and deeper import. Imagine my chagrin if I be overwhelmed at a vital point at the very beginning of the campaign.

Now for the scientific points which Dr. Mercier thinks will prove "disconcerting." He believes apparently that the modern giraffe has a long neck because ancestral giraffes stretched their necks and the stretching was transmitted, but that the giraffe's neck is not now as high as the cross of St. Paul's because the weight of it would crush the animal. Has anyone ever heard of a giraffe being crushed by the weight of its neck? We do not know that the individual giraffe can add a cubit to its stature by stretching, but we do know that the muscles, the bones, and the ligaments of an individual grow in size and strength when exposed to increased strain. If, then, the neck is capable of such facile evolution why not the supporting structures? The following is Dr. Mercier's definition of a variation. "By a variation I mean a difference between parent and offspring not due to post-natal action of the environment on the offspring." It appears, then, that if a child be bruised by forceps during delivery the injury is a variation, an inborn trait, but if he be circumcised immediately after the mutilation is an acquirement. The definition is interesting as explaining a good deal in Dr. Mercier's scientific attitude, but unfortunately will be accepted by no one who has a knowledge of the subject. Let me then attempt a definition myself and Dr. Mercier can pick it to pieces if he is able. Without definitions that really define we cannot have clear ideas or a common basis for discussion. An inborn trait (including variation) is one which takes *origin* in the germ plasm. It arises because the germ plasm is so constituted that under fit conditions of fertilisation, shelter, and nutrition, it tends to proliferate into an individual having that trait. An acquirement, on the other hand, does not take *origin* in the germ plasm. It is a modification of an inborn trait caused by the action of the environment on that trait *after* it has begun to develop from the germ plasm.

Dr. Mercier mentioned "bud variations" at Swansea and now seems to imagine that I evaded this point through inability to meet it. As a fact my time was scanty and the objection had already been disposed of many times and thoroughly. Let us take the case of the nectarine. When a gardener has grown a good variety of peach from seed he propagates it by cuttings. A cutting is a detached portion of the tree whence it is taken, and trees thus grown, no matter how numerous or how many in succession, still remain detached portions of the original tree which sprang from a seed. A thousand peach trees in an orchard may each have a thousand twigs and branches. One of those branches may bear nectarines. Since the peach differs from the nectarine the difference must have been caused somehow. But how? Only two ways are conceivable. Either the branch was exposed to external influences (wind, weather, nutrition, &c.) so surprisingly different from what the rest of the branches in the orchard were exposed to that it produced a nectarine instead of a peach, or else that portion of the germ plasm from which that particular branch arose was different originally—i.e., in the seed—from the germ plasm from which the other branches arose. In short, the difference must have been either in external influences or in the germ plasm. Can anyone, except, perhaps, Dr. Mercier, believe that the difference was in the external influences? I cannot do better than quote from Professor Adam Sedgwick's presidential address at Dover to the Zoological Section of the British Association. "In so far as these bud variations are not of the nature of acquired variations produced by a change of external conditions, and disappearing as soon as the old conditions are renewed, they are probably stages in the growth and development of the organism. That is to say they are of the same nature as those peculiarities in animals which appear at a particular time of life, such as a single lock of hair of a different colour from the rest of the hair, the change in the colour of the hair with growth, the appearance of insanity or epilepsy at a particular age. There is nothing more remarkable in a single bud on a tree departing from the usual character at a particular time of life than in a particular hair of a mammal doing the same thing."[1]

"If Dr. Reid means, as he appears to mean,' says Dr. Mercier, "disease and alcohol alone [produce evolution among civilised men], I not only doubt it, but think it preposterous." Yes, I do mean it. But it seems that Dr. Mercier has discovered that religion, laws, languages, commerce, and many other influences also produce evolution. He is not inclined to "swagger" about these discoveries. They jumped up and hit him in the face. Will he then tell us how they produce evolution and what the precise nature of that evolution is? I do hope, however, that we shall not be treated to another example of that confusion between evolution and mere development, which depends on a confusion of the inborn with the acquired and which is such a nuisance in so many popular treatises.

---

[1] Nature, Sept. 21st, 1899, p. 503.

The letter of "M.D. Edin." is a little puzzling. If he means to imply, as I think he does, that heredity lies at the root of every social and moral question I agree with him. Hence the importance of the study. But if he means to imply, but of this I am very doubtful, that we should suppress the truth for fear of disturbing some of the argu- [illegible] unded on error then I dis- [illegible] be profoundly immoral. [illegible] nly reply that I have "no practical suggestion whatever to make concerning the prevention of drunkenness" at present. We are discussing quite a different question.

I am, Sirs, yours faithfully,

Southsea, Sept. 12th, 1903. G. ARCHDALL REID.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—Dr. Harry Campbell's objections to the use of antiseptic tooth powders and mouth washes have been assailed as being "quite contrary to belief, acknowledged practice, and observation." We know that they are contrary to belief and acknowledged practice, but to say that they are contrary to observation is wholly unjustifiable. Indeed, clinical evidence of the value of antiseptic mouth washes is conspicuous by its absence and the absolute failure of acknowledged practice to check the ravages of dental caries at the present day is one of the most dismal facts which we are compelled to recognise. I do not know that any observations or tabulated results have been recorded to show that those people who use such antiseptic methods are in any way more free from caries than others. On the other hand, the evi- [illegible] eoples who consume food which [illegible] are relatively free from dental [illegible] ies is inversely proportional to the amount of mastication. I have particularly noticed that patients who carefully adopt the acknowledged practice are not only specially subject to "abrasion," "erosion," and recession of the gums, but are, as a rule, most liberally supplied with carious cavities or "fillings." I feel sure that the use of antiseptic mouth washes is only sanctioned by purely theoretical considerations. Dr. W. D. Millar showed that dental caries was a chemico-parasitical process and immediately he had done so he and the whole dental profession at once embraced the *theory* that we must destroy the micro-organisms and neutralise the acid in order to avoid the disease. It never was surmised that this chemico-parasitical process which causes the disintegration of the teeth was but an intensification or perversion of a normal process. Consider the nature of the micro-organisms of the mouth. Some are acid producers, some are liquefiers, and some produce acid or liquefy according to the medium in which they exist. It is obvious that those bacteria which liquefy gelatin and other albuminoid substances must be of great importance in rendering shreds of foodstuffs soluble and so helping to clean the buccal cavity, and within limits the acid producers may have a similar function. In fact it would seem impossible to do without the mouth bacteria as there is no ferment in the mouth capable of digesting the albuminous shreds and particles which otherwise would be bound to accumulate between and about the teeth. It may be said that at least we would be well to be without a considerable proportion of the acid-producing bacteria, for without acid it is impossible to have *dental caries. No doubt this is so.* But this result is best obtained by efficient mastication, for food which requires considerable mastication calls forth a corresponding flow of saliva which gets thoroughly incorporated with the food. The ptyaline converts the starch into a soluble form, while the mastication expresses it from the rest of the bolus. Thus, therefore, the starchy matter is more or less thoroughly swallowed, while the remaining part is being more completely masticated. By this means the smallest possible residue tends to lodge about the teeth and what little does remain, being almost devoid of starch, allows the bacteria which liquefy to predominate while preventing the multiplication of the acid-producing bacteria. If, however, food—especially starchy food—is taken in a soft form the flow of saliva is, relatively to the amount of starch, but inefficiently stimulated. The starch is not fully converted and swallowed but remains plastered, as it were, into all the crevices in and about the teeth. Furthermore, the chronic lack of efficient stimulation of the salivary glands engendered by relatively soft foods leads, no doubt, to a corresponding lack of development and output of ptyaline. Now if there is a relatively great amount of starch left about the teeth can we wonder that the acid-producing bacteria largely preponderate and play havoc with the teeth?

Of course, in exceptional circumstances, as during illness or after a very improper diet, the use of antiseptics may be advocated, "but under normal conditions their use is, I believe, to be deprecated."

I am, Sirs, yours faithfully,

Wimpole-street, W., Sept. 12th, 1903. J. SIM WALLACE.

To the Editors of THE LANCET.

SIRS,—The following experiment may be of interest during the controversy.

Eat a small piece of bread and notice the doughy feeling which it attains during the process. Brush the teeth with a solution of odol (I used the peppermint variety). Then eat another piece of bread and notice that the doughy feeling does not occur to anything like the same extent even after prolonged mastication. As a matter of fact, the gullet becomes aware that the bread is still quite granular when it is swallowed. This would seem to indicate an arrest in the production of ptyaline and a failure in the conversion of the starch, but the solution of that question I leave to other hands. It is, at least, a result of the use of a powerfully antiseptic tooth cleanser. I am, Sirs, yours faithfully,

Guernsey, Sept. 14th, 1903. J. AIKMAN.

UMBILICAL CALCULUS AND THE URACHUS.

To the Editors of THE LANCET.

SIRS,—The report published in THE LANCET of Sept. 12th, p. 747, of a Case of Umbilical Calculus by Mr. J. R. Harper and Dr. C. G. Seligmann is of considerable importance. It will interest those gentlemen to know that besides [illegible] zen others have been [illegible] mann, and Otto Hahn, [illegible] von Taubeneigrösse," [illegible] *eitrage zur klinischen* [illegible] umbilical calculus in Hahn's case measured 30 by 20 millimetres and was of the size and shape of a pigeon's egg. The patient, a man, aged 43 years, was of dirty habits—a common clinical feature, Hahn remarks, in all reported cases.

In relation to umbilical calculus is the question of urachal fistula, which I suggested in the article "Urachus" in the "Encyclopædia Medica." Although the usual cause is no doubt irritation from accumulation of dirt it is possible that in some instances the upper portion of the canal of the urachus remains open, communicating by a minute orifice easily overlooked with the surface of the integument in the umbilicus. The patent canal would then be liable to infection, so that it would discharge morbid material into the umbilicus which would mix up with epidermis and foreign matter. *Spencer Wells* found urinary (?) concretions in the canal of a urachus which was closed at both ends and Wutz twice detected [illegible] in a minute cystic dilatation [illegible] portion of the urachal canal. [illegible] n to exist we can understand how, if the upp[illegible] of the canal remained open, it might inflame and cause the development of concretions in the umbilicus.

I have *repeatedly observed*, when removing abdominal tumours, incomplete closure of the urachal canal and therefore *I suspect* that the urachus is more often a source of local mischief than is generally supposed. No doubt a well-established urachal fistula gives rise to very prominent symptoms and a *vesical* calculus in the dilated urachal canal, as in the case of Paget of Leicester, would never be mistaken for an *umbilical* calculus. Still, it is possible that in exceptional cases the urachal canal remains patent, though extremely narrow, throughout, so that when the bladder is unusually distended a few drops of urine might occasionally pass up it and irritate the integuments of the umbilicus. The composition of an umbilical calculus shows, I admit, that urine has no direct share in its development, hence the former explanation of the relations of a calculus of this kind to patency of the urachal canal is more likely to be correct.

I am, Sirs, yours faithfully,

Sept. 12th, 1903. ALBAN DORAN.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—I think it would be premature at present to conclude that the use of *boiled* water is equally efficacious with that of distilled or rain water in these cases. The actual agent of mischief is confessedly unknown, a matter of surmise only. If of mineral origin, as thought by many, boiling cannot with certainty destroy it.

Many cases of goitre are very evanescent. I have seen cases lasting only a few weeks getting well naturally without any treatment or alteration in drinking water. To base any conclusions as to treatment upon such cases would obviously be fallacious and may have led to error in the past. But the cases which I described in THE LANCET of July 18th, p. 185, were quite of a different category. They had existed for years unrelieved, giving rise to symptoms of such a serious and alarming character that a dangerous operation was contemplated, and this in spite of all kinds of treatment in different hands and (at least one of them) in different countries, with different water-supplies. The evidence here is incontestable, and until we get equally satisfactory evidence in favour of boiled water only we had better stick to what we indubitably *know*. Moreover, boiled water is unpleasant, whereas the aerated distilled water which I described is remarkably pleasant to drink. This is a matter of no small importance where the treatment has to be continued for many months, with often very slowly progressing improvement, so that the patient gets tired and doubtful and open to the suggestions of friends that the treatment "is doing no good" and that he "had better try something else."

As illustrating the fact that the treatment by the use of distilled or rain water is really new to a large majority at least of medical men, I may mention that I have had a letter within the last few days from a well-known physician and lecturer on materia materia and therapeutics to a large hospital and medical school for many years, a Fellow of the Royal Society (I will not give his name without permission). In this letter after expressing the interest with which he has read the articles in your columns on the subject he goes on to say, "I cannot regard the influence of rain water as *negative*, it must be *positive*. Can it be that there is some hidden form of ozone in the rain water?" Of course, this cannot have anything to do with the real explanation, for it cannot apply to distilled water, of which fact the learned professor must have momentarily lost sight. But it shows that the idea was entirely new even to one accustomed throughout his life to consider and to ponder on the subjects of materia medica and therapeutics on which he lectured.

I am, Sirs, yours faithfully,

Lancaster, Sept. 13th, 1903. C. A. RAYNE, M.D. Lond., &c.

A CASE OF PRESUMED PTOMAINE POISONING.

To the Editors of THE LANCET.

SIRS,—May the case recorded in THE LANCET of Sept. 12th, p. 755, under the above heading not have been one of perforated gastric ulcer? Against its having been one of ptomaine poisoning is the fact that the patient alone was affected. The absence of diarrhœa is also, I think, significant. On the other hand, perforation of a gastric ulcer usually occurs after a full meal. If my view is correct, then I believe that Dr. T. B. Broadway's patient had at first only a slight perforation but that the subsequent retching and vomiting increased the extent of the rupture and led to acute general peritonitis. The writer states that his patient did not show abdominal tenderness until the fourth day, but at the very outset of the history he tells us that when first seen (on the second day of the illness) the patient "complained of tenderness about the epigastrium."

My object in writing is to point out the danger of giving even ice by the mouth in such cases. It is not, perhaps, sufficiently recognised that the gastric mucous membrane does not immediately absorb even water. Undoubtedly it is safer to feed the patient entirely per rectum. Such cases when they occur in private practice are difficult to manage as removal to hospital is not always free from danger and operation is often impossible in the patient's home surroundings. At the same time the patients in some of these cases recover if seen early when the perforation is small and mouth-feeding is entirely stopped.

I am, Sirs, yours faithfully,

Edinburgh, Sept. 12th, 1903. JAMES BURNET.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

To the Editors of THE LANCET.

SIRS,—I have read with interest the letters in THE LANCET tending to strengthen my surmise that the unfortunate clergyman whose case I narrated was in part the victim of suggestive influences from the Press.

I am in full agreement with your correspondent "R. S. P." as to the grave responsibility incurred by the Press in publishing the details of tragedies from day to day. The immense power of suggestion on the human mind is as yet practically unknown or ignored even by the majority of those who esteem themselves wise and prudent. But it must be conceded that in the particular case which formed the subject of my article incidental good accrued in more than one respect by the publication of particulars. Reports calculated to give infinite pain to relatives and friends were spread through the neighbourhood by careless or vindictive tongues, but the wide circulation of the true facts with the added glamour to the ignorant of their being "in print" served to reduce these to silence. Then, again, the facts of the case as published were calculated to bring home to the common understanding the restricted part played by "consciousness" and the immense field of action that may be covered by the "subconscious" and lower areas of the human brain. When the elements of physiological psychology have become matters of common knowledge we shall doubtless modify our attitude towards transgressors of social law, achieving in time, perhaps, that degree of mental orientation expressed in the French proverb, *Savoir tout c'est pardonner*. By this I do not mean of course that punishment is shortly to be eliminated from the criminal code. Punishment for the transgression committed wittingly or unwittingly is a preventive measure of nature which finds a somewhat more discriminating parallel in the courts of justice. But something substantial in human progress will have been achieved when we have learnt to judge our neighbours less harshly and cease to

> "Compound for sins we are inclined to
> By damning those we have no mind to."

However, we must, I suppose. be content to wait in patience for the day when primary physiologico-psychological concepts have been grasped by the mind of the general. To attempt to force new truths into minds unprepared to receive them is like blowing open a rosebud in the hope of converting it at once into a perfect bloom. We must wait and watch while we give what aid we can to the working of subtler forces.

Your correspondent "R. S. P." hints at the possibility of establishing a psychical branch of preventive medicine. Undoubtedly much could be done in the way of awaking public opinion as to the very real danger arising from the pandering of the Press to the cravings of the morbid-minded. In a case which I recently saw there was a pre-existing susceptibility to morbid ideas and the homicidical element was wholly to be ascribed to "Press" influences. To pursue the point further and ask whether all impulses, morbid or normal, are or are not invariably the result of impressions immediate or remote would involve a critical consideration of the determinist theory. It is the effect of the more immediate suggestions that concerns us, and surely it is time that some of our papers developed a keener sense of their responsibilities. At the same time, we must not lose sight of the fact that there are already forces at work meeting evil suggestion by counter suggestion.

Such are the perception and fear of consequences, the affections, &c., and that force which has proved through history to be the greatest force of all—religion. Here I cannot do better than quote from Dr. Ormerod's article on Hysteria in Allbutt's "System of Medicine," for that which applies to hysteria applies also to other manifestations of the morbid mind. "Few things are more opposed to hysteria than the trustful, patient, altruistic spirit inculcated by Christianity and few things more conducive to it than the terrorism, revivalism, mysticism, or self-concentration which sometimes pose as religion."

This is a factor in therapeutics which no medical man can afford to ignore, whatever his views may be on the transcendental claims of religion. It is to the first half of the quotation from Dr. Ormerod that I wish to direct attention. But while feeling it right also to quote the context I most earnestly disclaim any intention to pass judgment on those cases to which reference has been made in my article and by correspondents. It may be that these victims to the overwhelming stress of circumstance may prove to be unconscious martyrs in a cause which many have at heart—the checking of morbid sensationalism in the Press.

I am, Sirs, yours faithfully,

Hampstead, Sept. 14th, 1903. J. S. MACKINTOSH.

THE DISAPPEARANCE OF MISS HICKMAN, M.D.

To the Editors of THE LANCET.

SIRS,—Referring you to the papers herewith, I can only express my regret that the Royal Free Hospital authorities refuse to have a proper inquiry into the sudden disappearance of my dear daughter. I have appealed to the police authorities but they say that they are unable to hold an inquiry until the dead body of my daughter is produced. I had hoped that if the Royal Free Hospital authorities would have an inquiry, open to everyone who could give evidence and assistance and with power to cross-examine witnesses, some of the leading physicians of the day might attend and, after hearing the witnesses, give their opinion as to the state of mind of my daughter when she so mysteriously disappeared from the hospital about midday on August 15th last, since which date nothing whatever has been heard of her. If she left the hospital without having "lost her memory" and in a perfect state of mind she must have been kept since then in some convent or other building so constructed that the inmates of it cannot communicate with the outer world. If my daughter had been taken to any ordinary house she, being so strong, would have made a disturbance sufficient to alarm the people in neighbouring houses who would have informed the police and obtained the reward of £200 for such information.

I hope the public will warmly take up this unfortunate affair. If my daughter's disappearance remains unsolved no woman will think she can be in the London streets in broad daylight with safety.

I am, Sirs, yours faithfully,

Fenchurch-street, London, Sept. 10th, 1903. E. F. HICKMAN.

⁂ Among the papers to which Mr. Hickman refers are some copies of letters which appeared in an evening contemporary during the year 1887 concerning convents. Of these letters one states, in a quotation from a pamphlet, that "many deaths take place in these institutions, but the registrar is not allowed to register them—is not even informed of them! As the law stands at present they can do as they like." The date of the letter in which this quotation appeared is Sept. 29th, 1887. Mr. Hickman suggests that his daughter is being kept in a convent and we presume that he wishes to imply that in case of her death in such an institution no one would know anything about it. This is not the case. The allegations that deaths occurring in conventual establishments are not reported to the Registrar-General and are not registered are entirely untrue. Convents are subject to the law of the land as regards deaths of inmates in exactly the same way as any other institution. We trust that the mystery of Miss Hickman's disappearance may be soon cleared up, for the strain to which her relatives are at the present time subjected must be heartbreaking.—ED. L.

THE MEDICAL PROFESSION AND QUACK MEDICINES.

To the Editors of THE LANCET.

SIRS,—There is a growing custom among West-end physicians to advise the use of patent medicines. They usually go through the farce of writing out what purports to be a prescription on headed note-paper and signed, but on sending it to your druggist to have it dispensed you are supplied with "A. and K.'s Trynow," a commercial medicine and not a prescription from the British Pharmacopœia which experience dictated to the mind of the great physician as suitable to your malady and which you were entitled to [illegible] llingly. [illegible] rynow" [illegible] be no remedy for such solitary two-guinea advice as "Eat an apple before breakfast"? I have the deepest respect for the honourable professions and sincerely hope that the medical profession is not falling upon degenerate days.

I am, Sirs, yours faithfully,

Sept. 10th, 1903. "SYRUP OF SQUILLS."

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Rising Epidemic of Plague.—The New Water-supply for Mussoorie.—The New Tube Wells of Burmah.

DURING the last week in August a marked increase has taken place in the mortality from plague in the Bombay Presidency, the deaths having risen from 2838 to 5568. The total mortality from plague in India has risen from 3613 to 6817. In Central India there has been an increase from 131 to 331, the mortality occurring chiefly in Indore city and Mhow cantonment. In Mysore also a rise has occurred from 331 to 535 and in Berar from 11 to 67. These figures are ominous because they show a widely spread recrudescence. At other places previously attacked the deaths are at present merely nominal—the Punjab and Calcutta, for example, only returning six deaths.

Those who know Mussoorie will be glad to hear of the completion of a great scheme for a better water-supply. The water is to be obtained from the Kempter Falls; the main feature is that it will be pumped up by electric power to three main reservoirs on the highest points of the ridge and thence distributed to the station. The electric plant is to have sufficient excess power to provide for the lighting of the whole place.

A method of raising water which has attracted but little attention generally has been used with great success in Burmah and might be made applicable to many parts of India. It consists of sinking tube wells (six or seven inch tubes) through alluvial soils until water is reached. The water rises in the tubes perhaps within ten or 20 feet of the surface. Then comes the special feature of the new process. A two-inch pipe is put down the larger tube right to the bottom and compressed air is forced in. The water which before was too low to be utilised now rises above the surface to a height varying according to the pressure supplied. The original supply may be as much as 200 feet below the surface but when the large tube is sunk it rises to a convenient distance. The compressed-air plant is not expensive and is readily applied. The system only requires to be known to be appreciated.

August 28th.

THE Nurses' Home recently built in connexion with the Birkenhead Borough Hospital will be opened by Sir Elliott Lees, Bart., M.P., on Saturday, Sept. 26th, when all persons interested in the institution are invited to be present. The building, which is L-shaped in plan and consists of ground and first floors, fronts Livingstone-street and has been erected on land adjacent to the hospital which was purchased a year or two ago from the corporation of Birkenhead. The home contains many modern improvements.

THE
ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Brussels, Sept. 12th.

IT is impossible to give a full description of the discussions which have taken place in the various sections. The motions adopted would of themselves fill several columns of space, to say nothing of the lengthy reports on which they are based and the prolonged discussions which some of these reports occasioned. All I shall attempt is to describe, with some amplitude, the work of the third and fourth sections, while mentioning briefly, and as a preliminary, the most interesting questions raised in the other sections.

THE FIRST SECTION.

As usual at these congresses the first or Bacteriological Section was the most attractive. Here a great number of reports were presented on the activity and doses of serums. What might be qualified as bacterial therapeutics were amply discussed, but, for my part, I fail to see what this has to do with hygiene. The use of serum as a prophylactic approaches nearer to hygiene and there were many papers and much was said on this subject also. But the section was more in harmony with the purport of the Congress when it discussed the question of the unification of processes for the bacteriological analysis of water. This was the fourth question set down, but the fifth question caused the greatest excitement, for it revived the dispute in regard to human and animal tuberculosis. The general opinion seemed to be that the bacilli were identical in man and cattle. In any case the matter is still in the experimental stage and therefore it would be most unwise in any way to relax the control of the meat-supply so far as tuberculosis is concerned. Numerous cases were mentioned of cattle being infected by human tuberculosis. Professor S. ARLOING of Lyons made a very remarkable speech on this subject and M. LIGNIÈRES of Buenos Ayres complained that too much time was spent in studying the mutilated bacilli of the laboratory instead of the bacilli as found in nature. Though undoubtedly of the same family the bacillus of tubercle differed in the bird, the bull, and man. The debate on this subject continued for more than one sitting and Professor G. SIMS WOODHEAD presided over the section on the afternoon of Sept. 5th. The discussion then came to a close and by a large majority the following motion was adopted by the section :—

> Human tuberculosis is more generally transmitted from man to man; nevertheless, in the present state of our knowledge on the subject the Congress deems it necessary to take measures against the possibility of the infection of man by animals.

To arrive at this decision the second section joined with the first section, for the former dealt with food-supply and the veterinary sciences in their application to hygiene. On the following day the two sections sat apart once more and in the first section a motion was carried empowering Dr. Bordet, of the Bacteriological Institute of Brabant, to inquire from the chief of each official laboratory the precise process which he employs and his reasons for so doing when making a bacteriological analysis of water. Dr. EHRLICH, Dr. SPRONK, Professor CALMETTE, and Professor WOODHEAD proposed that an international commission should be appointed to fix the value and strength of serums and the commissioners elected for this purpose were Dr. Bordet, Dr. Kraus Dr. Loeffler, Dr. Paltauf, Dr. Kirchner, Dr. Cartwright Wood, Dr. Massel, and Dr. Gavino. Professor CALMETTE, Dr. EHRLICH, and Dr. LOEFFLER proposed that a report should be presented to the next congress on the action of insects in the propagation of infectious diseases. Among the reporters appointed on this question were Dr. G. H. F. Nuttall from England and Dr. T. Smith from the United States of America

The last afternoon was devoted to the hearing of miscellaneous communications and some of them were of great interest. Dr. FOVEAU DE COURMELLES (Paris) read a paper on the Action of Light, its Power of Penetrating the Organism and its Use in the Treatment of Disease. Major E. MANGIANTI (Florence), a member of the Italian Medical Military Service, described the experiments which he had made with dust extracted from second-hand clothes. Inoculating 57 guinea-pigs and mice with this dust he found that 25 of these animals died from infection with clearly identified pathogenic bacteria. On the other hand, making similar experiments with the dust taken from 60 military uniforms, no injury was done to the animals, thus showing that the cleanliness and care taken of clothes in the army had a protective influence in regard to the germs of disease.

THE SECOND SECTION.

In this section a great deal was said about meat and still more about milk. Some attempt was made to minimise the danger of eating that portion of the meat from a diseased animal which did not seem to be affected, but such suggestions were not approved; yet it was agreed that the flesh of animals suffering from cattle plague and pleuro-pneumonia was not injurious. There was some difficulty in starting the discussion on milk. Professor BUDIN (Paris) treated this topic so much in the light of infant food that he was referred to the sixth section; others thought only of the chemical composition of milk; and Dr. RAQUET wanted to examine the question purely from a sanitary point of view. Dr. A. VAN ENGELEN said that it was first necessary to define what was meant by the term "pure milk," a proposal which was widely supported. Dr. BORDAS said that "milk is a liquid obtained by the complete milking of a healthy cow." He did not explain what the liquid that came from an unhealthy cow or from any other animal might be called. Dr. DELAYE proposed to define milk as "a liquid such as nature supplies to us from healthy animals." Dr. DEE explained the English law on the subject which, he thought, had contributed materially to reduce the prevalence of the adulteration and watering of milk. M. BERGÉ now asked what was meant by entire milk and thereupon a dispute arose as to whether watered milk was worse than skimmed milk. The water might convey disease but the skimming produced starvation. To decide these questions the section unanimously adopted a motion stating that only entire milk such as was supplied by healthy cows should be considered as milk. Then the section voted that skimmed milk should not be given to infants or aged persons. Thereupon it was suggested that skimmed milk should be sold in a different shop, but this proposal was rejected as not practical, especially in rural districts. The fourth conclusion of Dr. Bordas's report to the effect that antiseptics and other preservatives, of no matter what nature, should not be employed to preserve milk was unanimously adopted. Dr. van Engelen's report was considered to be somewhat impracticable, as his chemical definitions could hardly work in every-day trade. But his report led to many good things being said as to the supervision of dairies and to the suggestion that a poor milk should be made the pretext for examining the dairy whence it came. M. WILLEM and M. MIELE described a method for the antiseptic milking of cows which, they urged, would insure the preservation of the milk without pasteurisation. This may be true, but it is quite certain that only a highly trained nurse and not a milkmaid could carry out their complicated process.

The section then came to the question of preserving meat, vegetables, and the like. The following motions were adopted; they seem very like platitudes :—

> The employment of food of bad quality or in course of being spoilt should be absolutely forbidden. The sterilisation of preserved foods should be complete. It is not possible to define by one single formula applicable to all cases how this can be done. The conditions vary according to the utensils used, the nature of the food, &c The receptacles in which the food is kept should always be hermetically closed.

After this the second section merged with the first section to discuss the question of tuberculosis and it was not till the last day that it again sat by itself. M. RAPTCHEWSKI of St. Petersburg then showed a system by which tins of preserves could be inspected and their sterilisation demonstrated by a biological method. The general feeling, however, was that for practical purposes the main reliance must continue to be placed on the bulging out of the tins as a sign of decomposition. The section concluded that if after a period of incubation of one week at 38° C. a tin did not bulge out this was a sufficient proof that the contents were sterilised. How the contents would taste after so much over-cooking was not tested or discussed. Professor VAILLARD (Val-de-Grâce, Paris), one of the reporters, recalled the fact that the Congress of 1900 unanimously condemned the use of antiseptics, and though desirous of protecting industrial interests, their first duty was to the public—that is, to the consumer. Two delegates, however, protested and demanded a definition of antiseptics. Were not salt, vinegar, sugar, honey, and other ingredients in daily use antiseptic? Then hops could not be employed for beer, therefore it was necessary to explain that it was only the use of dangerous antiseptics that should be forbidden. Professor **VAILLARD** replied that the objects mentioned were first and foremost articles of diet. After considerable discussion the section rejected several amendments tolerating the use of certain antiseptics in special cases and finally adopted a resolution worded as follows:—

> There is no need to sanction the employment of antiseptics for preserved provisions.

The fourth report submitted dealt with the sterilisation of milk. One proposal was to the effect that 60° C. of heat for a quarter of an hour suffices and another that 85° C. for two or three minutes is enough and this was said not to spoil the milk. Nevertheless, Dr. Tjaden, director of the Bacteriological Institute at Bremen, concluded that the best way of preventing the spread of disease by milk was to inspect the dairies very carefully. The section had already accepted a proposal to that effect. Various speakers proposed different degrees of heat as sufficing for the purposes of sterilisation. Dr. **MULLIE** thought that heat at 75° C. for five minutes did not suffice to kill the germ of tuberculosis and several authors had shown that this temperature must be maintained for from 10 to 15 minutes. Nor did he think that cultures could test the matter; inoculation alone proved whether or no there was any danger. M. **LACLAINCHE** said that 85° C. was the minimum for the Koch bacillus. The section finally voted as follows:—

> The processes of pasteurisation adopted in private houses or in industries may assure the destruction of the microbes of tuberculosis in milk but they do not sterilise the milk.

This section also carried the following motions:—

> [illegible] the food-supply of men and animals.
>
> That the commission instituted at the Congress of Vienna, 1887, for the study of international measures that should be adopted against the adulteration of alimentary products—a commission of which Professor Brouardel is the president—should prepare for the next Congress a new report on the legislation actually in force and the surveillance exercised in different countries over the food-supply trades.
>
> That the Second Section, deeply convinced that micro-organisms have a very important influence on general questions of hygiene, but more especially on the question of food supply, expresses the wish that bacteriology should be taught in the faculties of science on the same footing as physics, chemistry, mineralogy, botany, and zoology.

Such were some of the main points raised in these two sections. The Third and Fourth Sections deserve a fuller [illegible] e directly with practical sanita- [illegible] last, when the summary of the [illegible]

THE FIFTH SECTION.

This may be considered the smallest section of the Congress and there were reports on only two questions—how to protect railway travellers and servants from transmissible diseases, and how to disinfect railway rolling stock. One of the most active members of this section is undoubtedly Dr. Louis de Csatary, chief of the sanitary services of the Hungarian railways. All who were at the Budapest Congress remember how useful he made himself in organising the excursion to Constantinople. But he has rendered a still greater service by never missing any of the congresses so that he should lose no opportunity of pressing forward the question of railway sanitation. As the majority of people only travel occasionally they are apt to neglect this subject, but they forget that the railway servants are in daily contact with travellers, and they and the carriages connect the travellers of the one day with those who have travelled before and those who will travel after them. Undoubtedly much of this danger would be obviated if the precautions that can be taken were understood by the whole staff of railway servants and one speaker desired to institute lectures on the subject, but Dr. **BECKER** replied that this would dislocate the railway service and that it would be better to distribute pamphlets. Then there was much discussion as to the provision of special railway carriages for persons who are ill and preventing such persons riding in ordinary carriages. Perhaps as much was said in regard to the health of the railway servants as with regard to the general public. For the public the carriages should be cleaned out often, but those railway servants who did this cleaning were especially exposed to contract diseases. They ought at least to be provided with overalls that could frequently be washed. Dr. **JUSTI**, of the Prussian railway medical service, urged that an international commission should see what could be done so that one country should not be placed at a disadvantage in regard to other countries that were less careful. In regard to the disinfection of railway carriages Dr. **REDARD**, chief of the medical service of the French State railways, said that these vehicles were at present so constructed as to render thorough disinfection impossible. Fumigations did not act on the microbe of tuberculosis. Carriages should be so furnished and upholstered that they could be washed all over. Dr. **KOSSEL** of the sanitary office of the German Empire pointed out that the system for the disinfection of trucks should be the same throughout Europe, especially in regard to cattle vans.

On Friday, Sept. 4th, this section, instead of holding a debate, went in a body to Namur and there visited the installations for the disinfecting and cleaning of railway carriages, cattle wagons, &c.

On Saturday this section exhausted its programme and was invited to join the sixth section on Monday where questions of travelling would also be discussed. After a long discussion it was generally felt that there was no known and practical method of disinfection for carriages which could be recommended to the various Governments. It might be urged that all nations should imitate the British legislation which rendered it illegal for a person suffering from infectious disease to travel in a public vehicle. Finally, the section adopted a series of recommendations to the effect that the upholstering of railway carriages should be such as to facilitate cleansing and disinfection. These carriages should be regularly cleaned out with damp cloths and pneumatic suction to draw dust out of cushions. More vigorous measures should be taken where it is known that contamination exists, as in times of epidemics, or when dealing with pilgrimages. Cattle vans should be disinfected each time they are used. For this purpose steam under pressure is especially recommended. The fifth clause of this resolution states:—

> It would be an advan [illegible] tries the same methods
> It would therefore be u [illegible]
> the control of an Inter [illegible]
> method or methods o [illegible]
> fulfilled the following [illegible]
> out deterioration of material.

In the afternoon of the last day in this section some discussion took place in regard to sanitation on board ship and Dr. **CHARLES BELLI** gave some interesting information concerning bacteriological life below deck which served to demonstrate the importance of the subject under discussion. Dr. **AUFFRET**, Naval Inspector General, declared that sanitation in the French navy had greatly improved. With ironclads hygienic measures were more necessary than with the old wooden ships and the *Gaulois*, the *Duguay Trouin*, and the *Suffren* were model habitations where hygiene reigned as sovereign mistress and this without interfering with the maritime services required.

(To be continued.)

OUTBREAKS OF PLAGUE NEAR THE TURCO-PERSIAN FRONTIER AND IN THE LEBANON.

(FROM THE BRITISH DELEGATE TO THE OTTOMAN BOARD OF HEALTH.)

A LIMITED outbreak of plague recently occurred in two villages on the Turkish side of the Turco-Persian frontier. A medical commission was despatched from Basra to inquire into the origin of the outbreak and to take measures for its control and it is from the report of one of the members of this commission that the following details are taken.

The earliest information concerning the outbreak was contained in a telegram from the sanitary office of Amara, dated April 22nd, which announced that an unusual mortality was prevailing in the village of Zobeir. This village, or small town, is about six hours' distance from Amara and two hours from the Persian frontier. Amara is a place of some importance on the river Tigris, some 50 miles north of its junction with the Euphrates. The commission left Basra on April 29th. On arriving at Zobeïr it was found that nearly the whole population had fled elsewhere and only about 40 persons—mostly women and children—remained. Before the outbreak occurred the village had consisted of about 60 houses, occupied by about 200 persons. Only two sick persons, both convalescent, could be found. Each had a bubo in the right groin which was in a state of suppuration.

On inquiry it was ascertained that the illness had been present in Zobeïr for some 22 days, that it had caused 17 deaths, and that, in addition to the two convalescents seen, two other persons had been attacked and had recovered. The symptoms described were those of typical bubonic plague. A further inquiry as to the origin of the disease brought out the fact that a serious epidemic had existed since February last at Huveïza, a place on the Persian side of the frontier, about three hours' distance from Zobeïr and having constant communications with the latter. The mortality in Huveïza is said to have been extremely high; the report, indeed, speaks of "thousands of victims." At Zobeïr the first case was that of a boatman plying on the river Chahala, the branch of the Tigris which enters the plain between Amara and Huveïza. This man had been to Huveïza and on his return to Zobeïr he fell ill and died after 48 hours' illness. Two days later his son was attacked and also died. Other cases followed and by May 2nd the numbers of cases and deaths had reached the totals already mentioned of 21 and 17 respectively. On May 11th six other cases were seen by the commission and the final totals were 27 cases and 23 deaths.

Two cases of plague were also discovered at Massaïda in the neighbourhood of Zobeïr and on inquiry it was found that four deaths from a similar disease had occurred there. The patients in both these cases died but several others followed and by May 24th, when the outbreak came to an end, the total number of cases had reached 20 of which 17 patients died and three recovered. Several of the cases here are said to have been "fulminant" in character with intense fever, headache, vomiting, purpura, disturbed speech, irregular pulse, stupor, and death—without the development of buboes—in 12 or 24 hours. Others followed a slower course and were characterised by the development of buboes in the usual positions.

The measures taken to control these outbreaks are said to have been in the end of a drastic character. During the first week little more was done than to establish a "cordon" around Zobeïr. The uselessness of this cordon is shown by the fact, stated above, that four-fifths of the inhabitants had already escaped elsewhere. When the commission arrived, however, more serious measures were put in hand. These consisted mainly in burning down the infected houses and in removing the inhabitants to tents or temporarily built houses some distance away, after first thoroughly disinfecting their persons and effects and giving them new clothes. Even these radical measures did not wholly suffice to arrest the epidemic at once, for though they were put in hand on May 2nd six fresh cases, all occurring in one day, were observed on the 11th. There were no further cases, however, and a month later, on June 11th, the cordon was removed against Zobeïr. Similar measures were taken at Massaïda, and on June 24th the cordon against this place was also suppressed.

Another outbreak of plague, still more limited in that it was apparently confined to three cases, has also occurred recently in the Lebanon. On July 4th the Governor-General of the Lebanon telegraphed that a suspicious disease existed in the village of Djibeïl, 15 miles to the north-east of Beirut. A later telegram, dated July 5th, described the village as containing 250 houses and some 1500 inhabitants, and stated that a case of plague, "clinically characteristic," had been observed in a native grain-dealer. The man had been ill for seven days. The village medical men had seen a similar case on June 26th, the patient being a young girl who died after three days' illness characterised by fever and buboes. The second case was that of a woman who lived near the first patient; she also died. In the third case, that of the grain-dealer, recovery ensued; plague bacilli were found in the bubo. It is added that several dead rats were observed in some of the village shops. None of the patients had left the village for many months before their illness, but as the inhabitants of Djibeïl possess sailing boats and have a good deal of traffic with the Egyptian coast it is thought the infection may have been introduced by the landing of contraband goods. Up to the present no written report on this outbreak has been received by the sanitary authorities in Constantinople and only the above scanty details, which are taken from the brief telegraphic reports, are available.

Constantinople, Sept. 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Glasgow University Extension.

AT a meeting of Glasgow University Court held on Sept. 10th, the Lord Provost in the chair, the members considered the question of the sites and designs of the new buildings and after a very full discussion saw no reason to stop the operations. Dr. D. C. McVail dissented.

Imported Enteric Fever at Glasgow.

Considerable interest has been taken in the fact that Dr. J. Knight, acting medical officer of health, has reported to the health committee of the corporation of Glasgow the discovery within the city of several cases of enteric fever of imported origin. He states that up to the present 18 such cases have been ascertained and they are not confined to any one particular district in the town. The history of all these cases is similar in the following respects. The patients had been on holiday at the same coast town during the probable time of infection. Further, they had all without exception consumed shell-fish (cockles and mussels) in the raw and cooked conditions. This raised the presumption, in the absence of any other source of infection, that the shell-fish had been the cause of the disease owing to their having been contaminated with sewage. This presumption is strengthened by the occurrence of similar cases in two burghs adjoining Glasgow. The above list does not contain eight other cases belonging to one family, the origin of the disease amongst which deserves special notice and cannot fail to be regarded as confirmatory of the presumed cause of infection. This family had not visited the coast town in question but had shell-fish from that place brought by a neighbour and had eaten the same. From a study of the dates of sickening in this latter family it is evident that the mother sickened of enteric fever and that the remaining members had become secondarily infected through her. Added to the list given above this makes a total of 26 cases directly and indirectly associated with the same coast town. The medical officers of health of the county and burgh concerned sent shell-fish some time ago to the medical officer of health for examination by Dr. R. M. Buchanan, the city bacteriologist, but the investigation is not yet complete. No other cases have been discovered and it is probable that the outbreak is at an end. Meantime, the local authorities concerned have issued precautions containing warning against the consumption of shell-fish from that particular locality. In view of the above facts the Local Government Board has asked whether the local authority would allow Dr. Knight to accept an appointment by the said Board as commissioner to investigate outbreaks of enteric fever alleged to be due to the eating of infected shell-fish. The health committee has agreed to recommend that this request should be acceded to, at the same time intimating to the Local Government Board that a report on the recent outbreak of enteric fever in the city from this alleged cause is being prepared by Dr. Knight for the information of the corporation, and that a copy of that report would on completion be forwarded to the Board for its information.

Sept. 15th.

RELAND.

(FROM OUR OWN CORRESPONDENT.)

Irish Poor-law Medical Officers.

THE Local Government Board has written to the Ballymena board of guardians pointing out that it devolves upon that board to provide temporary substitutes for dispensary medical officers during the absence of these officers on vacation and that the guardians should therefore allow such reasonable remuneration as may be necessary to secure the services of duly qualified practitioners. In reference to the Ballymena and Glenwherry dispensary districts the Local Government Board recommends the guardians to make the requisite temporary appointments The guardians decided to have a conference on the question and accordingly a committee appointed by them met on Sept. 12th to confer with the dispensary medical officers in reference to the holiday question and the payment of temporary substitutes for these officers while on vacation It was then decided to pay each dispensary medical officer in lieu of holidays ten guineas additional, this to be a full discharge of all liability by the guardians in the matter of holidays for the dispensary medical officers, this was unanimously agreed to by the medical officers The decision is to be regretted on two grounds (1) because it is to be feared that on a vacancy occurring in any of the dispensaries held by those who have obtained this increase the guardians will simply deduct this increase, fixing the salary at the present sum minus the ten guineas, and (2) it does not settle the question of the payment of locum tenents in case of sick medical officers All the medical officers must stick together in every part of Ireland or their attempts to obtain justice will be a failure.

Granard Union Inquiry.

What is known as the Granard nursing scandal is still a subject of general, and especially of medical, interest in Ireland It has just entered on a new phase At a meeting of the guardians held on Sept 14th a long letter was read from the Local Government Board referring to the recent report of Dr J Smyth, its inspector It first deals with the conduct of the master of the union as regards the patient Masterson who died and to the admission of the locum-tenent who undertook the duties of the medical officer, Dr J M S Kenny After alluding to former adverse reports concerning the master the Board states that he "cannot be permitted to retain the position of master and they have accordingly given directions for the preparation of an order under seal dismissing him from the office" As regards the locum tenent, the Board considers that the evidence proves conclusively "that he is not a proper person to be entrusted with the care of the sick poor and they will not sanction his employment in future either as permanent or temporary medical officer" With respect to another person concerned the Board is of opinion that he deserves censure for the part that he took in actively helping out the scheme planned for the avowed purpose of depriving Dr Kenny of his appointment in the Granard workhouse A record has been made against him in the books of the department and the Board states that it trusts that it will be a warning to him not to be again led into any similar discreditable transaction and to confine his attention to the discharge of his duties in his own district The letter goes on to say that as the other persons who took part in this regrettable affair are not amenable to the control of the Local Government Board "no useful object would be gained by passing their conduct under review" The letter concludes with a pious exhortation *to the rebellious guardians* "Now that the medical officer has disclaimed any intention of wilfully hurting the feelings of the sisters and has expressed his regret that any words or actions of his have had this effect, the guardians appear to have an opportunity of bringing about a reconciliation which would have the effect of facilitating the return of the sisters to their place in the infirmary"

Health of Belfast in 1902

The medical officer of health (Dr H Whitaker) has issued his annual report on the health of the city of Belfast for 1902 There were 7577 deaths during the year and of these 1027 were from zymotic disease, 1132 were from *phthisis*, and 1779 were from other diseases of the respiratory organs An epidemic of measles was responsible for 349 deaths, whooping cough for 208 diarrhœa for 204, and typhoid fever for 169 The death rate was 20 8 per 1000 from all causes (2 8 from zymotic and 8 0 from chest affections) The birth rate was 30 5, the population being estimated as 358 680 The deaths from chest and zymotic diseases were 3938—that is, more than one half of all the deaths registered in the city It is deplorable to read that as to the causes of the deaths of the other 3639 the medical officer of health [illegible] st of the other large centres of [illegible] of health is supplied with this [illegible] could be obtained, as also the names of the streets and numbers of the houses in which the deaths occurred, by arrangement with the registrars of the respective districts I know nothing of where any deaths take place, except from the Registrar General's returns, which merely state that *so many deaths occur in a certain district.* As these districts comprise hundreds of acres and thousands of persons it is impossible for me even approximately to state where they occurred" So long as this most extraordinary state of affairs exists, what is the use of a health report at all? What is the use of a health committee if it cannot support its official and put an end to such a state of matters which would not be tolerated a week in any English city? Again, Dr Whitaker writes "I have no means of estimating the numbers of the different forms of chest affections" This shows a most deplorable condition of matters Pulmonary tuberculosis caused 1132 deaths during the year (and as all the other diseases of the respiratory organs are quoted together it is not improbable that many of them were tuberculous) This means a mortality of 3 1 per 1000 during the year, and it is sad to read that the total number of beds in Ireland for this disease only amount to 85, of which more than one half are in Belfast The report is melancholy reading for two reasons—first, because it shows such a terrible death rate from the preventable disease pulmonary tuberculosis, and secondly, because it indicates that the suggestions made by the medical officer of health, in this as in former reports, to his committee are indeed the voice of one crying in the wilderness

Proposed Shelters for Consumptives in a Belfast Park

The proposal made by the public health committee of the city corporation of Belfast to erect shelters for consumptives in Ormeau Park aroused so much indignation amongst the residents of the city that it was defeated at a meeting of the council on Sept 1st

Infectious Diseases in Belfast

An influential deputation appointed by the board of management of the Royal Victoria Hospital waited on the city council of Belfast at its monthly meeting on Sept 1st. The chairman, Mr W Crawford, J P, having introduced the deputation, Professor J W Byers pointed out that when the new Royal Victoria Hospital was opened the authorities of that institution would no longer be able to take in infectious cases as when six years ago they began to mature their plans they were informed that the city corporation was about to erect an infectious diseases hospital and so they did not make provision for that class of patients Now when they were about to leave the old hospital (where for 100 years infectious diseases were treated) they found that the city fever hospital would not be available for at least three more years and the question arose as to what provision the city council would make during this transition period for the class of patients who up to the present were admitted into the old Royal Hospital The suggestion the board of management made was for the city corporation to take over the old Royal Hospital and to utilise it for infectious cases until *the new city fever hospital was quite ready* The deputation was favourably received and it was decided to refer the matter to the public health committee for further consideration

Lurgan Workhouse

The guardians having asked the medical officer of Lurgan workhouse for a report in reference to the increased expenditure, Dr J S Darling has replied, pointing out that to give an explanation involved much difficulty, as the cost of the inmates in the body of the house was not distinguished from that of the patients in the infirmary and fever hospital so that there would always be a doubt as to how much of the excess in any item was due to one part of the establishment and how *much to the other* A diminution in the average number of days during which the patients in the infirmary were under treatment had taken place For instance, in 1897 1050 patients were treated of whom 28 were fever cases, in 1903 1632 were treated, 239 of them in the fever hospital. So that there was an increase of 33 per cent. in the collective number of days for the entire establishment and one of 63 per cent in the numbers treated in the infirmary and fever hospital With 582 moving through the wards in a year, a small increase of cost per day, Dr Darling submitted was amply compensated for by the great fall in the average duration of treatment The contributions of patients have risen from a very small sum in 1897 to £173 in 1903 If he was shown by someone how to treat the sick on less than *3s 3d* per week *(this sum including* fire, light, food, washing, and stimulants) Dr Darling said that he would be glad to learn and he believed that many institutions would be pleased to know how that institution did justice to fever patients at less than 5s. per week. The report is to be further considered.

The New Royal Victoria Hospital.

The patients from the old Royal Hospital in Frederick-street, Belfast, will be transferred to the new Royal Victoria Hospital in Grosvenor-street on Thursday, Sept. 17th. At first three surgical units—that is, six wards with four theatres and 96 beds; two medical units—that is, four wards with clinical rooms and 64 beds; the gynæcological and eye wards (each with 16 beds), and the isolation blocks will be opened.

Formalin in Milk.

In Belfast, on Sept. 14th, a farmer was fined £5 for employing formalin as a preservative of milk.

Sept. 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Plague at Marseilles.

THE London daily press has given much fuller details of the cases of plague which have occurred at Marseilles than we are able to obtain in this country, even with the advantage of being able to apply to the best and most trustworthy sources of information. At the moment at which I write it appears evident that the epidemic is stayed, no fresh cases having been notified for some days. The patients, moreover, who are in the lazaretto on the Ile Ste. Marguerite are well on the way to recovery. Dr. Chantemesse, joint inspector of the sanitary department, is in Marseilles and has organised preventive measures of a practical sort. The plague, as is well known, broke out in a paper factory which makes use of rags coming from abroad. For some time past a great mortality among the rats in this factory had been noticed—a fact which should have been a warning of what might be going to happen. The early cases noticed were slight, but in the later series it would seem that infection had been caused by a virus of higher strength. Injections of preventive serum were promptly given and the factory has been disinfected in the most thorough manner by being burned down, accidentally it is true, but possibly none the less fortunately. It is therefore probable that the plague has been extinguished at its place of origin.

Workmen's Compensation.

The new law dealing with compensation for accidents to workmen, which has given rise to so many difficulties in its application, is now menaced with a new set. There is a disposition to include under the word "accident" any illness or disease which a workman may contract. Already the courts have had some singular cases before them. In one of these a workman in a glass factory contracted syphilis through using a blow-pipe which it was alleged had been infected by one of his fellow workmen. He thereupon demanded damages from his employers. The court reserved judgment; but should it decide in favour of the workman in question his fellows will have no reason to congratulate themselves, for their employers will certainly be within their rights if they discharge without mercy any man showing signs of syphilis. Tuberculosis is another question of the same sort. A railway porter brought on a pulmonary hæmorrhage by lifting a trunk which was too heavy for him. He then presented no sign of pulmonary tuberculosis, but this developed within a short time and he accordingly, with the advice of his medical man, sued the company for damages. It would have been interesting to know what view the courts would have taken, but the company, dreading a case against them which would be used in future as a precedent, preferred to compromise by paying a sum of money. The case is without doubt a difficult one, for it is impossible to decide how far the workman before receiving his injury was affected by predisposition. Even if there is no history of family predisposition there remain conditions which have nothing to do with his employment or the place in which he works, such as his mode of life at home, his food, his addiction to alcohol, or the chance of infection from some part of the town quite apart from the factory. Again, as in the case of syphilis, the recognition of tuberculosis as an "accident" will not benefit the workers, for employers, who always have more applications for posts than they have room for, will ruthlessly eliminate all the hands who appear likely to contract tuberculosis and so a number of people will be driven into starvation. Lead-workers are also demanding that lead poisoning should be considered as an "accident" without taking into consideration the effects of alcoholism or their own neglect of necessary hygienic precautions. In a word, there is no disease incidental to trade which may not be classed as an "accident," though possibly this may have the effect of making employers more rigorous in seeing that hygienic precautions are carried out. But even then there would be a class of workman who would rather live in idleness, with an illness contracted voluntarily and a small pension, than work and be well.

Sept. 15th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Newsboy Regulations.

REFERENCE has been made on more than one occasion in the New York correspondence of THE LANCET to the condition of child labour in the United States and to the various laws proposed in different parts of the country to remedy the evils of the present system. At the last session of the New York Legislature three child-labour laws were passed, the first of which has just come into effect. It concerns itself with the employment of children in street trades, especially with the sale of newspapers, and enacts that no male child under ten and no girl under 16 years of age shall sell or expose or offer for sale newspapers in any street or public place. Further than this, it provides that boys between ten and 14 years of age may do so only until 10 o'clock at night, and while doing so must wear badges which are issued by the district superintendents of schools. The application for such badges must be made by the parent, guardian, or custodian of the boy who must also be present. The newsboy law and those relating to children in factories and mercantile establishments have been the result of the work of the New York Child Labour Committee. According to its secretary the purpose of this committee is twofold. One is to bring all children into the schools where they can have the advantages of an elementary education and the other is to stamp out child labour wherever possible, the claim being that the combination of illiteracy and physical decadence is detrimental to the welfare of the State.

Cholera in the Philippines.

Although the cholera situation in Manila is said to be steadily improving—according to the latest report there had been in the preceding week eight cases and seven deaths in that city—the disease is very prevalent in many other parts of the islands. So far as Manila is concerned the recent outbreak, with one exception, has been entirely confined to natives and Chinese. It is stated that most of the persons affected have either directly or indirectly come into contact with the Pasig river. Consequently much concern is felt with regard to the cholera which is still present on the watershed which supplies Manila with its drinking water. According to public health reports there has been an alarming increase in the number of cases in that locality. During the week ended July 4th there were 57 cases and 35 deaths. It is generally felt that the delay in the onset of the rainy season has been of great assistance in preventing the stream which drains the watershed from becoming infected. It is thought that the drinking water supplied by the city mains was not infected during the epidemic in Manila last year. Therefore, should this supply now become infected the widespread dissemination of the disease can well be imagined. In Cebu cholera is rampant, so much so that strict quarantine measures have been enforced.

Spread of Yellow Fever in Mexico.

It is announced that yellow fever is spreading rapidly in Mexico and especially along the gulf division of the Mexican Central Railroad. The fever is epidemic in many towns situated in proximity to the railroad and the mortality is stated to be large. The Mexican authorities have made vigorous efforts to quell or to control the epidemic but with no great success. A double quarantine has been established between Monterey and Linares; at the latter place the disease is very prevalent. Texas is alarmed at the situation, fearing that the disease may be conveyed across the border and is said to be meditating the establishment of an old fashioned quarantine against Mexico The sanitary conditions in some of the Mexican towns are bad, yellow fever patients are not always rigorously isolated, all cases of the malady are not promptly reported, nor is the destruction of mosquitoes carried out in a thorough manner Nevertheless, on the whole, the Mexican people may be relied upon to coöperate loyally with the medical men of the United States Public Health and Marine Hospital Service, so that the fear of yellow fever invading the United States by way of Mexico is far less than in former days

Vital and Toxic Theories of Cancer and their Bearing on the Parasitic Theory

In the Gratwick Research Laboratory of the University of Buffalo good scientific investigatory work has been done as regards the origin of cancer It will be remembered that some two and a half years ago Dr Gaylord, of the University of Buffalo, propounded views as to the parasitic origin of cancer which excited much discussion Recently Mr G H A Clowes of the Gratwick Research Laboratory has written on the vital and toxic theories of cancer and their bearing on the parasitic theory He summarises his views as follows —

> An attempt has been made in my note to show that the parasitic [illegible] impossibility of infecting healthy individuals with the blood of cancer patients but only by means of intact cells

Sept 7th

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT)

Lunacy Matters

FROM the report of the Inspector General of the Insane of New South Wales it appears that on Dec 31st, 1902 the number of insane persons under official cognisance was 4687, as against 4488 at the end of the previous year The increase during the year, therefore was 199 The average annual increase for the past 20 years was 119, the increase now shown was, therefore, much above the average The proportion of insane to the general population was one insane patient to 299 persons in the State The patients on the register were distributed as follows 4467 were in hospitals for the insane, 53 were in licensed houses, 153 were absent on leave under the provisions of the Lunacy Act, and 14 were in hospitals for the insane in South Australia The number in hospitals had increased by 203, in licensed houses by three, and in South Australia by one The deaths numbered 318 199 of these being of men and 119 of women Calculated on the average number resident this gave a percentage of 7 18 By far the larger number of deaths were due to cerebral and nervous diseases The proportion was 119 out of a total of 318 or 37 4 per cent Of these no less than 36 were cases of general paralysis a disease which invariably fatal, was increasing in modern times out of proportion to the increase of population Pulmonary consumption was given as the cause of 56 deaths and old age and debility of 24 Patients whose health was in a low condition were specially susceptible to phthisis and overcrowding of the wards with the resulting want of efficient ventilation, was a prolific cause of its spread The year 1902 had been characterised by the largest number of admissions on record and by the largest increase in the population of the hospitals in any one year and although some part of these might be due to the distress caused by the drought, an examination of the figures showed that each year an increased number of patients must be expected in the hospitals It was apparent that the present institutions cannot continue to accommodate these without enlargement, and the need for this had now become pressing The most satisfactory method of providing the accommodation was by proceeding with the erection of the hospital at Orange as had been recommended in previous reports A suitable site had been reserved, cleared, and fenced, ready to begin building operations The plans had been prepared and required only detail drawings to be submitted to tenderers It would, however, be requisite to enlarge the existing institutions Of these, Gladesville urgently required the addition of admission wards for acute cases of both sexes, and at Rydalmere at moderate cost accommodation for a considerable number of men could be provided These works should be at once carried out, while the larger undertaking at Orange was also being progressed with

Public interest in the subject of lunacy reform is growing in Victoria Several public meetings have been held and the newspapers are publishing papers and correspondence on the subject almost daily On July 31st a deputation of about 100 people, including prominent business men, medical men, clergymen, politicians, municipal representatives, and representatives of various organisations, waited on the Chief Secretary to urge the imperative need of radical reform in lunacy administration The statements made were repetition of what had been pointed out before and what has been previously referred to in these columns The reply of the Chief Secretary was not satisfactory beyond saying that an amending Bill was being drafted He declined to indicate the lines of the Bill A Bill previously drafted gave very little satisfaction When asked whether he would not do something to correct evils requiring immediate attention and not demanding legislation the Chief Secretary said, "I don t know that I can As a matter of fact, many improvements have been suggested that would not be expensive or require new legislation, but nothing has been done

Hospital Affairs

The annual report of the Melbourne Hospital showed that the year closed with a deficit of £4073 2*s* 5*d* in the maintenance account The total number of patients treated was 22,925, of whom 4328 were received into the wards. The number of patients suffering from infectious diseases was 354 and of these 231 were children under the age of 15 years Regarding the financial position of the institution the report stated that a proposal to close some of the wards had been deferred in the hope that public response to a special appeal for funds would render unnecessary what the committee thought an act of inhumanity With the object of increasing the area of support the committee suggested that a vigorous effort should be made to secure the imposition of a tax on amusements for the benefit of public charities The maintenance of the hospital had cost £7147 19*s* 2½*d*, which was £171 less than last year, the surgery and dispensary (£5196 13*s* 4½*d*) were £269 less, salaries and wages had totalled £7817 16*s* 11*d*, which was £146 below last year, while on the total ordinary expenditure of the year, amounting to £26 194 12*s* 1*d*, a saving of £1101 had been effected on the figures for the preceding 12 months The ordinary income of £21,570 13*s* 4*d* had gone back slightly, which was due mainly to the reduction in the Government grant, but general subscriptions had been very well maintained —The thirty third annual report of the Alfred Hospital Melbourne showed that the number of out patients treated during the year was 4265, the in patients numbering 2010 and the casualties 2380, making a total of 8655 The average cost per occupied bed showed a marked reduction on the previous year, the figures being £58 19*s* as against £61 10*s* The cost of each patient was also less, though the average stay was one day longer The further reduction of the Government grant by £720, in face of the greatly increased demands on the hospital accommodation had been the main cause of the institution failing to meet the expenditure out of revenue —The condition of the leading medical charities in Melbourne is now one of chronic debt A great deal of the difficulty in obtaining adequate funds [illegible] probably for the maint[illegible] of which due to the [illegible] necessary overlap in [illegible] expenditure, in the way of administration of money that otherwise would go towards maintenance Altogether, there are in the metropolitan area no less than 151 institutions and societies for philanthropic purposes Another cause of trouble is the extent to which all the o organisations look to the Government for financial support The amount received from the subscriptions of the charitable is relatively small and a glance at the lists of subscribers shows that practically the same people limited in number, subscribe to all the charities The cost of collecting the o subscriptions is also far too heavy Out of every £100 collected the Eye and Ear Hospital spends £32 1*s* 2*d* for considering the abnormal circumstances in which recruiting had recently been carried on, while much of the evidence of the Scottish Commission went to show a decided improvement. Nevertheless, many children never attained their proper development. These were mainly the children of the apparently poor who were too ignorant or too careless to nurture them properly. Mrs. Bosanquet was of opinion that the evil could not be met by subsidising the parents' earnings or by school feeding, but only by educating women in their duties as wives and mothers, and meanwhile by dealing with neglected children individually. Mr. Henry Southall agreed that it was improper expenditure rather than poverty that had to be combated. Mr. A. L. Bowley said that Mr. Rowntree's and Mr. Booth's research did not touch districts characteristic of the agricultural or manufacturing population.

LOCAL AUTHORITIES AND POLLUTED SHELL-FISH.—Dr. H. Williams, the medical officer of health of the Port of London, in his report to the Port Sanitary Committee states that last December the sale of cockles from Leigh-on-Sea was prohibited by the Fishmongers' Company in the London market owing to their pollution by sewage effluent after being relaid in Leigh Creek, but this restriction was withdrawn on the understanding that the cockles should be brought straight from the gathering grounds and boiled for not less than three and a half minutes. Relaying, however, had been continued, and Dr. Williams thought it was essential that local authorities should have powers to prevent the collection of sewage-polluted shell-fish which affected the health of a large number of persons.

THE NEWTON ABBOT (DEVON) ISOLATION HOSPITAL.—The new isolation hospital erected by the Newton Abbot joint hospital committee has been just opened for the reception of patients. The hospital has been built at a cost of £3560 and will be used solely for cases of enteric fever. It contains two wards, each of which has beds for four male and female patients respectively. The administrative block, in compliance with the requirements of the Local Government Board, will provide accommodation for five nurses. At the rear of the building is an iron hospital which, at first intended for small-pox patients, is to be used for cases of diphtheria and scarlet fever. In the two hospitals beds are provided for 20 patients, but in an emergency the number could be increased to 30. Near the entrance gates and in other parts of the grounds are the mortuary, laundry, disinfecting chamber, and washhouses.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.

A Treatise on Diseases of the Rectum, Anus, and Sigmoid Flexure. By Joseph M. Matthews, M D., LL.D., President of the American Medical Association, 1898. Third edition, revised. Price 21s. net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

The Practical Details of Cataract Extraction. By H. Herbert, F.R.C.S Eng., Major I.M.S., Professor of Ophthalmic Medicine and Surgery, Grant Medical College. Second edition. Price 4s. net.

CHURCHILL, J. & A., 7, Great Marlborough-street, W.

Surgery: its Theory and Practice. By William Johnson Walsham, F.R.C.S. Eng., M.B , C.M. Aberd. Eighth edition. Illustrations by Walter George Spencer, M.S., M.B. Lond., F.R.C.S. Eng. Price 18s. net.

A Simple Method of Water Analysis. Especially designed for the use of Medical Officers of Health. By John C. Thresh, M.D. Vict., D.Sc. Lond., D.P.H. Camb. Fourth edition. Price 2s. 6d.

FISCHER, GUSTAV, Jena.

Der Basalzellenkrebs. Von Dr. E. Krompecher, Privatdozent für pathologische Histologie und Bakteriologie und Adjunkt am pathologisch-anatomischen Institute No. II. der königl ung. Universität zu Budapest. Price M.20.

HARRISON AND SONS, St. Martin's-lane, W.C.

England's Future. By W. Culver James, M.D. Third edition, Price 3d.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Vaginale und Abdominale Operationen. Von Dr. Karl Abel in Berlin. Price M. 6.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

The Story of My Life. By Helen Keller. With a supplementary account by John Albert Macy. Price 7s. 6d.

LEWIS, H. K., 136, Gower-street, W.C.

Cancer and Precancerous Changes: their Origin and Treatment. By G. H. Fink, M.R.C.S., L.S.A. Lond., Major, Indian Medical Service (retired). Price not stated.

A Practical Text-book of the Diseases of Women. By Arthur H. N. Lewers, M.D. Lond., F.R C.P. Lond., Senior Obstetric Physician to the London Hospital and Lecturer on Midwifery in the London Hospital Medical School. Sixth edition. Price 10s. 6d.

OBSTETRICAL SOCIETY OF LONDON, 20, Hanover-square, W.

Transactions of the Obstetrical Society of London. Vol. XLV. For the year 1903. Part II., for March, April, and May. Edited by Amand Routh, M.D., Senior Secretary, and Herbert R. Spencer, M.D. Price 5s.

PENTLAND, YOUNG J., Edinburgh and London.

Manual of Practical Anatomy. By D. J. Cunningham, M.D. Edin. & Dubl., D.Sc., LL.D., D.C.L. Oxon., F.R.S., Professor of Anatomy in the University of Edinburgh. Volume second. Thorax; Head and Neck. Third edition. Price not stated.

RUDEVAL, F. R. DE, 4, Rue Antoine Dubois, Paris.

De l'Hospitalisation d'Urgence en Temps de Guerre. Par le Dr. Ferrier. Price 3 francs.

SWAN SONNENSCHEIN AND CO., LIMITED, Paternoster-square, E.C.

The Wonderful Century. New edition. By Alfred Russel Wallace. Price 7s. 6d. net.

THE MACMILLAN COMPANY, New York (MACMILLAN AND CO., LIMITED, London.

Studies [illegible] iene. By James Edward Peabo[illegible] the Morris High School, New [illegible]

VOGEL, F. C. W., Leipsic.

Archiv für Experimentelle Pathologie und Pharmakologie. Redigirt von Dr. B. Naunyn und Dr. O. Schmiedeberg in Strassburg i.E. 50 Band, 1 u. 2 Heft. Ausgegeben am 3 September, 1903. Preis eines Bandes M. 16.

WHITTAKER AND CO., 2, White Hart-street, Paternoster-square, E.C.

University College, Bristol. Calendar for the Session, 1903-1904. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BAWDEN, J. B., M.D. Edin., has been appointed Certifying Surgeon under the Factory Act for the Kidwelly District of the County of Carmarthen.

BRYDON, JOHN, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed House Surgeon at the Hartlepools Hospital, Hartlepool.

CONDON, F. W., L.R.C.P., F.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Act for the Ballyshannon District of the Counties of Donegal and Fermanagh.

FITZ-HENRY, R. S. W., M.R.C.S. Eng., has been appointed House Surgeon to the Dewsbury and District General Infirmary, Dewsbury, Yorks.

HINCHLEY, A. R., M.D., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

HOUSLEY, JOHN, M.D. St. And., has been appointed Medical Officer of Health of the Retford District Council.

KENNEDY, A. DINGWALL, M B., Ch.B. Glasg., has been appointed, *pro tem.*, Medical Officer to the Ballachulish Quarrymen's Medical Club and Friendly Societies.

KNIGHT, WILFRED E., M.B., L.R.C.P. Edin., has been appointed Senior House Surgeon to the West Ham and East London Hospital.

LIGHT, L. W., L.R.C P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of the Bradwell District of the Maldon (Surrey) Union.

MORGAN, C. HOWARD, M.R.C S., L.R.C.P., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

NESFIELD, R. W., M.B., Ch.B. Vict., has been appointed Medical Officer of the Cumberworth Division of the Huddersfield Union.

ROBERTSON, A., M.D., D.P.H., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

SELLS, C. J., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of the "Scattered Homes" of the Guildford Union.

THOM, R. B., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Linlithgow District of the County of Linlithgow.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERYSTWYTH, THE INFIRMARY.—House Surgeon. Salary £150 per annum, with board and residence.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board, washing, &c.

BRADFORD POOR-LAW UNION (SANATORIUM FOR CONSUMPTIVES), Eastby, near Skipton.—Resident Medical Officer. Salary £100, with rations, apartments, and washing.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120, rising to £140 per annum, with rooms, board, coal, and light free.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Physician to Out-patients.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and washing.

GLASGOW EYE INFIRMARY.—Resident Assistant House Surgeon. Salary £75, with apartments and board.

HITCHIN, THREE COUNTIES ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 a year, with board, lodging, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

KILDONAN AND LOTH JOINT PARISH COUNCILS.—Medical Officer. Salary £93.

[illegible] COUNTY ASYLUM, Winwick, Warrington.—Assistant [illegible] prospect [illegible] ing. [illegible] Officer.

[illegible] Peckham.—[illegible] annum, with [illegible] g. [illegible] nths. Salary [illegible]

SAMARITAN FREE HOSPITAL, Marylebone-road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—House Physician for the "Dreadnought" H[illegible] with board, residence, [illegible] Officer. Salary £40 p[illegible] ing. Also House Surg[illegible] and Albert Docks, E. [illegible] and washing.

SOUTHAMPTON INCORPORATION WORKHOUSE INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer.—Salary £120 per [illegible] tments, rations, washing, and [illegible]

[illegible] ulwich grove, S.E.—Assistant [illegible] 150 per annum, increasing to [illegible] ashing. [illegible] Surgeon. Salary £80 per annum, [illegible]

SURREY DI[illegible] Salary £[illegible] and attendance.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, and board and lodging.

WEST HERTS INFIRMARY, Hemel Hempstead.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, fire, lights, attendance, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

FRYER.—On Sept. 5th, at Kildare, Brockhurst, Gosport, the wife of H. E. Fryer, Surgeon R.N., of a daughter.

GREEN.—On Sept. 6th, at Broad-street, Ludlow, to Dr. and Mrs. Edward [illegible] n, the [illegible] wife [illegible]

MARRIAGES.

[illegible] St. Leonards-[illegible]

DEATHS.

[illegible] n Tyne, Thomas [illegible] Stamford Hill, [illegible] Kibbler, M.B., [illegible] d road, Bourne-[illegible] (retired), aged 40 years.

PILLOW.—On August 31st, Henry Pillow, M.D. R.U.I., of 41, Merton Hall-road, Wimbledon (late 1, Pembridge-gardens, W.), aged 42 years.

SUMPTER.—On Sept. 7th, at Cley-next-the Sea, Norfolk, Walter Sumpter, M.D., in his 70th year.

WHITE.—On August 31st, in Egypt, Arthur Thomas White, M.R.C.S., L.R.C.P., Inspector Sanitary Department, Ministry of Interior, Cairo, from diphtheria, aged 31 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A QUESTION OF HOSPITAL DISCIPLINE.

WE recently received a communication from Mr. E. C. Hadley, late resident medical officer at the Guest Hospital, Dudley, and Dr. C. Rolleston, late assistant house surgeon at the same institution, explaining the circumstances in which they had considered it to be their duty to vacate their posts. The circumstances, as stated by *these gentlemen, who have asked us to express an opinion upon their* conduct in the matter, were as follows. A patient was admitted to the Guest Hospital, Dudley, with a fracture of the tibia and fibula, the severe crushing of the skin and soft tissues leading to slough. He was a refractory patient and removed his splints repeatedly. He was then told that he would have to leave the hospital unless he conformed to the rules. He submitted to authority and was allowed to stay, the circumstances being reported to Mr. M. A. Messiter, the senior surgeon to the hospital. On another occasion the authority of the nurses had to be upheld in the same manner. The fracture progressed unfavourably and at last it became necessary to amputate the limb. During convalescence the patient again became insubordinate, appearing to have considered that some neglect on the part of [illegible] *of amputati*[illegible] by one of t[illegible] hospital. But when his sister came with a conveyance to remove him from the hospital he took off his clothes, went to bed, removed [illegible] to get up. He was carried [illegible] lent and abusive, and was [illegible] nt, we are informed, of the [illegible] ne day the patient's sister called upon Mr. Messiter, informed him of her brother's expulsion from the hospital, and asked him to visit the patient. Mr. Messiter telephoned to the hospital for an explanation of the circumstances and *on learning them is stated* to have acknowledged that everything done had been done in accordance with the rules of the hospital. The following day the patient saw Mr. Messiter and apologised for his conduct, with the result that Mr. Messiter telephoned to the hospital that he was to be readmitted, the re[illegible] before the circumstances of the expulsion had [illegible] should be accepted and *that the patient should be removed from the* hospital in order that the resident medical officer and assistant house surgeon might be able to continue their duties for the three months' necessary notice of resignation of the senior post. This alternative was refused and Mr. Hadley and Dr. Rolleston and a nurse left the hospital at once. This is the gist of the statement sub*mitted to* us by Mr. Hadley and Dr. Rolleston and upon their conduct throughout this most *disagreeable episode they invite our* opinion.

Before expressing any opinion it will be well to consider a communication which we received from Mr. Messiter, as a result of an invitation to tell us the story from his point of view, for he obviously was at variance with the resident medical officer and the assistant house surgeon. Mr. Messiter's statement *began by substantially* confirming that of Mr. Hadley and Dr. Rolleston, on the assumption that we had received from them a slightly different document from the one which had reached us. The differences in point of fact amounted to nothing, Mr. Messiter merely suggesting corrections upon two points of omission which, as a matter of fact, did not exist in the *statement* of his juniors. It was not suggested by them that the insubordination of the patient was reported to Mr. Messiter more than once, and it was not stated that Mr. Messiter had been in*formed* of the patient's discharge before the patient's sister called at his house. For the rest Mr. Messiter's statement of the occurrences tallies with that of Mr. Hadley and Dr. Rolleston. Mr. Messiter, however, has given us fully his reasons for readmitting the patient. Firstly, the patient apologised in *the fullest and humblest manner* for past misconduct and vowed to sin no more. Secondly, the stump had dead bone in it and urgently required treatment which it was not receiving. Thirdly, Mr. Messiter was not aware that the man had been insubordinate upon repeated occasions. Fourthly, Mr. Messiter [illegible] the time of the expulsion of the man and [illegible] and, says [illegible] Messiter does n[illegible] opinion between [illegible] that, over and above compassion *for a sick man, there* was the reputation of the hospital to be thought of. He points out that when the

Communications, Letters, &c., have been received from—

A.—Dr. H. E. Annett, Liverpool; Mr. Thomas Allen, Ledbury.

B.—Mr. Arthur H. Bostock, Chichester; Mr. W. H. Brown, Leeds; Dr. Andrew Balfour, Khartoum; Messrs. Burroughs, Wellcome and Co., Lond.; Dr. M. Breitmann, St. Petersburg; Messrs. Adam and Charles Black, Lond.; Mr. John Brydon, Hartlepool; Dr. D. Bayer, Buda-Pesth; Dr. J. Braithwaite, Bishop Auckland; Brins Oxygen Co., Lond.; *Birmingham Pictorial and Art*, Publisher of; Messrs. Robert Boyle and Son, Lond.; Bengers Food, Ltd., Manchester; *Belfast News Letter*, Lond.

C.—Dr. R. W. Cook, Lond.; Mr. J. Campbell, Helmsdale; Mr. F. Cohen, Bonn; Mr. G. H. Colt, Lond.; Messrs. S. Clark and Co. Lond.· Chemical Discoveries, Ltd., Lond.; Mr. G. W. Clark, Lond.; Cornwall County Council, Truro, Chairman of; C. B. H.; Mr. J. B. Cameron, Lond.

D.—Dr. H. N. Dakhyl, Lond.; Mr. G. E. Dodson, St. Leonards-on-Sea; David Lewis Northern Hospital, Liverpool, Secretary of; Dr. J. Dulberg, Manchester; Mr. F. Davidson, Lond.; Miss R. Davies, Godalming.

E.—Mr. T. Crisp English, Lond.; Mr. J. Jameson Evans, Birmingham; Messrs. Evans, Sons, Lescher and Webb, Lond.; Elisabeth Iron-water, &c., Co., Lond., Manager of; Mr. W. McAdam Eccles, Lond.; Eccles and Patricroft Hospital, Secretary of.

F.—Mr. E. Harding Freeland, Lond.; Messrs. Farebrother, Ellis and Co., Lond.; Messrs. P. M. Francis and Co., Nottingham; F. G. T. E.

G.—Mr. W. Grisewood, Liverpool; Messrs. W. Gaymer and Son, Attleborough; Messrs. Gurney and Jackson, Lond.; Dr. J. R. Gibson, Paisley.

H.—Mr. B. Whitworth Hird, Norwich; Mr. A. E. Holden, Lond.; Dr. W. Hennings, Lond.; Messrs. J. Haddon and Co., Lond.

J.—Dr. O. Clayton Jones, Silverton.

K.—Messrs. Henry S. King and Co., Lond.; Messrs. R. A. Knight and Co., Lond.

L.—Dr. G. Lamb, Kasauli, India; Mr. W. Bevan Lewis, Cardigan; Lancs. County Asylum, Warrington, Clerk of; Messrs. Lee and Martin, Birmingham; *Liverpool Journal of Commerce.*

M.—Mr. Arthur Moser, Lyons; Moseley's Food, Ltd., Stockport; Mr. W. Mathie, Glasgow; *Motor Cycle*, Lond., Editor of; Mr. C. H. Murray, Lond.; Manchester Medical Agency, Secretary of; Mr. S. A. Marples, Lond.; Dr. W. W. Maxwell, Lond.; Mr. P. N. Mookerjee, Benares; Medical Society of Victoria, Melbourne, Hon. Treasurer of.

N.—Dr. E. Norton, Folkestone; Mr. M. W. Nachfolger, Cassel; Messrs. Neyroud and Son, Lond.; Messrs. Nicolay and Co., Lond; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Mr. G. S. O'Rorke, Nottingham; Mr. R. S. Olver, St. Austell.

P.—Dr. G. Newton Pitt, Lond.; Mr. Young J. Pentland, Edinburgh; Mr. P. Phillips, Llanelly; Pharmaceutical Society of Great Britain; Mr. G. R. Pollard, Ramsgate; Mr. R. C. Pitt, Lond.; Messrs. Peacock and Hadley, Lond.

R.—Mr. D. Lloyd Roberts, Manchester; Dr. J. Lloyd Roberts, Liverpool; Mr. J. E. Roberts, Lond.; Messrs. G. Ricordi and Co., Lond.; Mr. C. Rolleston, Gloucester; Messrs. Reinheimer and Co., Surbiton.

S.—Mr. Moses Simpson, Manor Park, Essex; Southampton Incorporation, Clerk of; Mr. J. P. Sandlands, Brigstock; Messrs. W. F. Stanley and Co., Ltd., Lond.; Mr. J. W. Swan, Parkstone; Scholastic, &c., Association, Lond.

T.—Mr. H. F. Trippel, Richmond; Mr. G. D. Thomson, Ruskington; T. H. S.

V.—Vauxhall Ironworks Co., Lond.; Mr. J. F. B. de Villiers, Aberdeen.

W.—Dr. Hugh Woods, Lond.; Dr. W. Hale White, Lond.; Dr. John T. Wilson, Hamilton; Dr. G. Williams, Vernon; Mr. O. K. Williamson, Lond.; West Herts Infirmary, Hemel Hempstead, Secretary of; Fleet-Surgeon J. H. Whelan, R.N., Plymouth; Dr. A. G. Wilson, Penistone; Dr. W. B. Warrington, Liverpool; Mr. Fred H. Ward, Lond.

Y.—Dr. Eugene S. Yonge, Manchester.

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. Allen and Hanburys, Lond.; A. E. G.; A. B. S.; A. L.; A. R. M.; A. R. H.; A. R. G.; A. E. P.

B.—Dr. G. W. Brown, Hanley; Dr. A. Brydon, Galashiels; Messrs. Barnett and Shirer, Lond.; Brighton, &c., Dispensary, Assistant Secretary of; Miss P. M. Bishop, Colchester; Mr. R. R. P. S. Bowker, Abertillery; Mr. J. C. Bladworth, Goole; Mr. C. Burt, Snitterfield; Bristol General Hospital, Secretary of; Messrs. J. Beal and Son, Brighton; Mr. W. Bell, Lond; Mr. E. T. Born, West Falkland Islands; Mr. J. L. Baskin, Exminster; Messrs. Battle and Co., Neuilly-sur-Seine.

C.—Dr. E. Cameron, Cleethorpes; Mr. F. T. Cotton, Dublin; Cotswold Sanatorium, Cheltenham, Secretary of; Messrs. W. and R. Chambers, Edinburgh; Coventry and Warwickshire Hospital, Secretary of; Mr. G. E. Cotter, Lond.; Messrs. J. and A. Carter, Lond.; Mr. J. J. Crowley, Cork; Clayton Hospital, Wakefield, Secretary C. S. D. S.; C. G. F [illegible]

D.—Mr. A. H. Drimmie, Dublin; Mr. L. B. Dhargalker, Bombay; Mr. G. W. Bampfylde Daniell, [illegible] orn; [illegible] y of; [illegible] Dum- [illegible] etary of.

E.—Mr. J. Elliott, Stroud; E., Crouch-end.

F.—Mr. Fogg, Lond.; F. W. B.; F. C. W.; F. E. T. E.; F. T. A.

G.—Messrs. Graham and Shepherd, Sunderland; Messrs. Gray and Selby, Nottingham.

H.—Mr. W. G. Haydon, Yiewsley; Dr. T. Hawkesworth, Thrapston; Miss Hinnell, Brentwood; Mr. M. M. Hutchinson, Polperro; Mr. R. Haslam, Bolton; Mr. W. C. Henderson, St. Andrews; Holloway, &c., Dispensary, Secretary of; Miss Henderson, Lond.; H., Westminster; H. C.; Messrs. C. J. Hewlett and Son, Lond.; Dr. M. Hunter, Attercliffe; H. G. S.

I.—Invernith Lodge Retreat, [illegible] r of; Mr. [illegible] Imperial [illegible] d.

J.—Mr. J. H. Jeans, Eastbourne J. H. H.; J. F. C. M.; J. T. C. C. J. E. F.

K.—Dr. L. Kidd, Enniskillen; Mr. W. Kirwan, Oranmore; K. D.

L.—Mr. J. C. Lyth, Heworth Leith Hospital, Secretary of; Lexicon, Lond.; L. E.

M.—[illegible] Mr [illegible] H. [illegible] Macmillan and Co., Lond; Manchester Hospital for Consumption, Secretary of; Medicus Barnsbury; M. S. M. D.

N.—Mr. J. W. Norman, Carlisle Northern Medical Association Glasgow; Northlands Retreat Lond., Secretary of.

P.—Mr. H. A. Powell, Folkestone Mr. H. J. Pearson, Lond; Physician, Southampton; Preston Royal Infirmary, Secretary of Parke's Drug Stores, Ltd., Lond. Mr. C. R. Porter, Lond.

R.—Mr. J. Ross, Belfast; Roya Alexandra Infirmary, Paisley Secretary of; Ross, Ltd., Lond Royal Victoria Hospital, Dove Hon. Secretary of; Messrs. Reissmann and Co., Lond.; M R. Redpath, Newcastle-on-Tyne R. F. S.; R. L.; R. L. J.

S.—Dr. B. B. Sapwell, Aylsham Mr. R. J. Stillwell, Uxbridge Mr. W. H. Smyth, Hillsborough Dr. B. R. Sawhney, Jammu India; Mr. J. Sampson, York Dr. S. Stephenson, Lond; M W. Stevenson, Lond.; Smith [illegible]

T.—Dr. A. Tait, Lepton; Mr. Tucker, Ashby-de-la-Zouch; M J. Thin, Edinburgh.

U.—Dr. H. Upward, Romford Mr. T. H. Unwin, Newcastle-o Tyne.

W.—Mr. A. P. Walters, Isle Eigg; Mr. A. O. Way, Ame sham; Dr. H. Waters, Berwick on-Tweed; Mr. E. Williamso Newhall; Mr. J. F. Walke Swallowfield; W. H. W. Mr. J. Williams Bradford Mr. A. F. Wilson, Colcheste W. H. W.; W. G. H.; W. W. W. D.

Y.—Major M. T. Yarr, R A M South Farnborough; *Yorkshi Post*, Leeds, Manager o Y. H. M.

EVERY FRIDAY. **THE LANCET** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5
Official and General Announcements	Ditto	0 5
Trade and Miscellaneous Advertisements	Ditto	0 4
	Every additional Line	0 0

Quarter Page, £1 10*s*. Half a Page, £2 15*s*. An Entire Page, £5

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not on affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittanc

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies on should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manag Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addresse

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Adv tisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER 31 Rue Bapts, Asn[illegible]es, Paris.

A Clinical Lecture

ON

PERFORATION IN TYPHOID FEVER,

WITH AN ACCOUNT OF TWO CASES OF RECOVERY AFTER SURGICAL TREATMENT.

Delivered at St. Thomas's Hospital

BY HECTOR W. G. MACKENZIE,
M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—Perforation of the bowel in typhoid fever has been generally admitted to be one of the most terribly fatal of accidents. Until a few years ago the physician when he recognised its occurrence knew of nothing which could avert death and had to content himself with attempting to ease the patient's sufferings and with preparing the friends for the inevitable. It was of no consequence whether the accident was recognised early or late, or even at all, and the classical descriptions in the text-books applied rather to the terminal condition of the patient than to the symptoms and signs of perforation itself.

It is one of the greatest triumphs of modern surgery that by its means the lives of a no insignificant number of patients have now been saved from death by perforation. You see before you to-day two patients who have made a good recovery, having been operated on by my surgical colleague, Mr. W. H. Battle, shortly after the accident, which in both cases occurred during the height of the illness. We have now had at this hospital three successful cases out of nine operated on. At the Johns Hopkins Hospital six lives have been saved by operation out of 18. In the series collected by Finney[1]—a series including many cases in which surgical aid was called in too late—there are no fewer than 23 recoveries out of 112 cases operated on, and Dr. W. W. Keen[2] has published tables of 158 cases with 37 recoveries. When one takes into account the fact that in a large proportion of the cases operation has not been performed until more than 18 hours had elapsed since the perforation the number of successful cases must be considered as extremely encouraging

It is not my intention to enter into details as to the treatment of perforation, for there is, in my opinion, no room for doubt that the only rational treatment is surgical, by laparotomy and suture, and accordingly does not come within my province. Physicians are all agreed that the medical treatment of this accident has scarcely ever succeeded in saving a patient's life, while laparotomy has already in a few years saved many lives I am bound to draw special attention, however, to the fact that in but few of the modern text-books is it duly impressed on the reader that when perforation has occurred practically the sole chance of saving the life of the patient is early operation. Dr. J. Dreschfeld in his article in Allbutt's "System of Medicine," published, it is true, seven years ago, says, that while surgical interference has been suggested "it is very difficult to give the indications which render an operation likely to be successful" Dr P. H. Pye-Smith in the latest edition of Fagge's "Text-book of the Principles and Practice of Medicine" conveys the impression that there is as little to be hoped from surgical as from medical treatment. He says: "Though the results (of surgical interference) are usually unsuccessful, they are perhaps not more so than of those of treatment by opium." A. Chantemesse[3] (1899) refers to some 30 cases in which laparotomy has been performed (not all certainly typhoid, the author says); "on compte, je crois, deux succès." Lancereaux and Paulesco[4] (1903) say: "La première indication est d'immobiliser l'intestin, le laudanum enfin," &c, thus teaching the new generation to persevere in the futile methods of the past But I think the reason why few physicians have as yet become enthusiastic over surgical treatment for perforation is that they nearly always see these cases too late and they have not had any personal experience of the successful results which may be obtained from early operation. For myself, I am in complete agreement with the conclusions of Finney[5] when he says: "The only rational treatment of perforation is a surgical operation and to this there is no contra-indication save a moribund condition of the patient."

I want first to impress upon you that perforation is no uncommon accident. There is clear and unmistakable evidence that one out of every three or four deaths from typhoid fever is directly brought about through this complication. Everyone who is in general practice is certain to have to treat few or many cases of typhoid fever and the chances are that in one out of every 30 cases he has perforation will occur.

The frequency of perforation—The statistics as to the frequency of perforation given even in the best text-books are mostly ancient and do not help us very much. They have been copied from one book to another and are of little value for this country. You will find it stated in numerous text-books on the authority of Murchison that out of 1721 necropsies the proportion of cases of perforation was 11·13 per cent., but if you go to the fountain head and consult Murchison's[6] own work you will see he mentions that among 412 necropsies in this country there were 80 cases of perforation, or 19 41 per cent., while among 1309 which he collected from French and German literature there were 116 or 8·8 per cent. From the available statistics it would seem that on the continent they have a much smaller proportion of cases of perforation than we have here, but we have to consider the disease as we meet with it in our own country. According to Hölscher[7] among 2000 necropsies on cases of typhoid fever at the Munich Pathological Institute there were only 114 cases of perforation or 5·7 per cent. Murchison met with 48 cases of perforation, or 3 per cent., among 1580 cases of typhoid fever, while Liebermeister[8] at Basle found only 1·3 per cent. among 2000 cases and Schulz[9] at Hamburg only 1·2 per cent. among 3686 cases. I shall not attempt to explain why the proportion of cases of perforation is so small in the continental statistics, but shall proceed to show you that here and in other English-speaking countries the accident is a more frequent one.

We have ready to our hand in the careful statistical reports of metropolitan hospitals thoroughly trustworthy information, the diagnosis in nearly every case having been verified by post-mortem examination. I give in tabular form below statistics obtained from four London hospitals :—

TABLE I.—*Giving Particulars relating to Typhoid Fever in Four London Hospitals*

Hospital	Years	No. of cases.	No of deaths.	No. of perforations
St. Bartholomew's .	1894-1901	1031	125	42
St Thomas's	1887-1902	938	139	49
Middlesex...	1892-94-95-97-1900	349	36	14
Charing Cross	1890-93	215	40	12
—	—	2533	340	117

It will be seen that there is a remarkable agreement between the results at the four hospitals. The mortality from all causes is 13·4 per cent. and from perforation 4·5 per cent. Three of the cases of perforation recovered after operation. In fully a third of the fatal cases perforation occurred. The statistical reports for the hospitals under the Metropolitan Asylums Board show that 5878 cases were admitted to the hospitals during the five years 1897-1901, among which there occurred 920 deaths and 189 cases of perforation. The mortality from all causes was 15·6 per cent. and from perforation 3·2 per cent. It is possible that post-mortem examinations are not so constantly made in the fatal cases

---

[2] [illegible] ary, 1900.

[4] [illegible], 1903.

[5] Loc. cit.

No. 4178.

would be a mistake to place implicit reliance on its presence or absence in a doubtful case. One cannot expect at present that blood counts will be made in typhoid fever except in hospitals. For the sake of completeness I regret that no blood counts were made in either of our two cases, but, as I have indicated, I do not attach much weight to leucocytosis or its absence as an aid to diagnosis. In two recorded cases there was a relative leucocytosis up to the time of perforation when there was a decided diminution.

Diagnosis.—We must not expect that we shall be able to recognise the occurrence of perforation every time it happens. Sometimes it gives rise to no characteristic symptoms. It may occur in a patient already prostrate and more or less unconscious and we cannot know of it until the necropsy reveals it. It is some consolation, however, that symptoms are most likely to be absent in the least favourable for operation. Dr. Thomas McCrae records that in one of his cases there was "no drop in temperature, no especial increase in rapidity of pulse, no nausea or vomiting, no symptoms of collapse, no obliteration of liver dulness, no muscle spasm, no marked diminution of respiratory movements, no leucocytosis." In such a case a diagnosis of perforation is impossible.

We must also be prepared for mistakes in diagnosis. In not a few cases has laparotomy been performed for suspected perforation when none existed. It is satisfactory to learn that no harm appears to have resulted as a rule, but it is a mistake which all of us would wish to avoid. Professor James Stewart[14] reports the case of a male, aged 25 years, who on the fifteenth day of illness was seized with abdominal pain increasing in severity accompanied with abdominal tenderness, especially over the left inguinal region. Abdominal distension, rigidity, with disappearance of liver dulness were made out later. The abdomen was opened, no perforation was found, and the patient made a good recovery. Dr. H. Cushing[15] relates a similar case. During a relapse a girl, aged 15 years, was seized with sudden pain, vomiting, and distension. No perforation and no sign of peritonitis were found on laparotomy. No ill-effects, however, followed the operation and the relapse followed the ordinary course, ending in recovery. We have had one case of this kind at St. Thomas's Hospital in 1900. Perforation was suspected and laparotomy was performed but no perforation was found and there were no signs of peritonitis, but there was a gangrenous patch close to the ileo-cæcal valve.

It is the sudden onset of acute abdominal pain which most usually gives rise to the suspicion of perforation and it is needless to say that acute abdominal pain may suddenly come on from many different causes apart from perforation. All that one would insist on is that when pain comes on the possibility of perforation should be carefully and thoughtfully considered. I would direct especial attention to a valuable study of abdominal pain in typhoid fever by Dr. McCrae[16] of the Johns Hopkins Hospital. Dr. McCrae observed that in 161 out of 500 cases, or 32·2 per cent., abdominal pain was present at some period of the attack other than the onset. In 13 of these the pain was due to perforation, in 13 it was associated with hæmorrhage, in 65 it could be attributed to some known cause, but in no fewer than 70 cases there was no discoverable cause for the pain. Fortunately, in the majority of these the pain was neither very severe nor of long duration. In 14 cases, however, besides pain there were other abdominal symptoms and leucocytosis and all these cases were the cause of much anxiety. Two patients were operated on without any perforation being found, and two died but nothing to explain the pain was discovered.

Peritonitis without perforation.—When peritonitis occurs without perforation there is great difficulty in making a correct differential diagnosis. The usual absence of any acute sudden onset of pain is perhaps the only point of distinction on which we can lay stress. When, however, nonperforative peritonitis commences with sudden acute pain we can scarcely hope to be able to distinguish it from perforation. No doubt a good many cases of this kind have been operated on as we find not a few recorded in literature. Dr. Cushing[17] has drawn attention to what he has called the pre-perforative stage of ulceration in which a limited inflammation of the serosa occurs prior to perforation. He strongly advocates operative treatment at this stage. If we could know that perforation was inevitable in such cases then there could be no doubt as to the necessity for operation. But I do not think that we are justified in recommending laparotomy unless it is our belief that perforation has already taken place.

Appendicitis.—It is, I consider, impossible to make a differential diagnosis between perforation of the appendix and perforation of a neighbouring part of the intestine, nor is it a matter of any importance that one should be able to do so. The surgeon will, of course, always examine the appendix should a perforation not be discovered in the ileum near the ileo-cæcal valve.

Hæmorrhage.—Not uncommonly intestinal hæmorrhage is associated with abdominal pain. When with pain there is marked collapse perforation will very likely be suspected. In certain cases perforation and hæmorrhage are associated. These cases are extremely difficult. The question is usually whether the hæmorrhage has been profuse enough to account for the condition of collapse or shock. If the hæmorrhage be severe there will be blanching of the lips and marked diminution in the number of red corpuscles as well as increase in the number of leucocytes. If there are symptoms and signs pointing to perforation we must not be misled because there has also been hæmorrhage.

Cholecystitis is characterised by abdominal pain, but the pain is referred to the right hypochondrium. The pain may be extremely severe, as in a case reported by Da Costa where the patient, a child, eight years of age, frequently shrieked out on account of it. There is tenderness in the region of the gall-bladder usually most intense a little above and to the right of the umbilicus, and with the tenderness muscular rigidity may be made out. A palpable tumour, the enlarged gall-bladder, can be detected in many cases. A slight degree of jaundice may be observed or bile may be discovered in the urine. Leucocytosis may be present. The seat of the pain and tenderness and the presence of a palpable rounded tumour are the most important points in diagnosis.

Perforation of the gall-bladder will in many cases be difficult or impossible to distinguish from perforation of intestine. It is important, however, that the distinction should be made for an abdominal incision in the right hypochondrium is the proper position for an exploration of the gall-bladder region. If there have been symptoms of cholecystitis then the diagnosis of perforation of the gall-bladder may be made on the occurrence of such symptoms as have been mentioned as characterising the onset of perforation of intestine. Intense pain in the region of the gall-bladder generally occurs at the onset of perforation.

Biliary colic due to gall-stones might give rise to a suspicion of perforation. The site and character of the pain, the absence of muscle spasm, and the character of the pulse would help the diagnosis.

Thrombosis of the iliac veins has sometimes closely simulated perforation and more than one such case has been recorded where perforation has been suspected and laparotomy has been performed. It gives rise to severe abdominal pain of sudden onset, with vomiting and nausea. Leucocytosis is usually well marked. Muscle spasm and superficial tenderness will, however, be absent and it will probably be found that there has been some evidence of previous thrombosis of one or other femoral, shown by pain and tenderness in the femoral or iliac region, together with some œdema of the limb on the affected side.

Pneumonia sometimes gives rise to pain referred to the abdomen and the onset of pain may be preceded by vomiting and a rigor. The pain, however, is usually attended by a catch in the breath and the respirations are rapid and shallow. Physical examination of the lungs will probably reveal the presence of abnormal signs, while the abdomen will be found free from rigidity and local tenderness.

Conclusions.—Every case of typhoid fever should be looked on as one of possible perforation, for which emergency the medical man in attendance should be from an early stage of the illness thoroughly prepared and have all in train for prompt action. In a hospital there ought to be no difficulty in having the operation performed without delay once the diagnosis is made. In private practice, however, much time, every moment of which is of importance, may be lost unless the practitioner has made all the necessary arrangements beforehand, and has seen to it that he can quickly obtain the services of a competent surgeon. In order that the operation may be successful the sooner it is performed after the occurrence of perforation the better and an early diagnosis is accordingly of the greatest importance.

I strongly recommend you to study the schedule of specific instructions to be followed in cases of typhoid fever drawn up by Professor Osler[18] of Baltimore, to whom we owe much for his most practical observations on perforation and perforative peritonitis in typhoid fever. The following schedule is Dr. Osler's with slight modifications. 1. Every nurse in attendance on a case of typhoid fever should have precise and definite orders at once to report to the medical man in charge if the patient should complain of abdominal pain or vomit or hiccough, or if there be a sudden change in the rate or character of the pulse or respiration, or evidence of collapse. If there be pain, vomiting, hiccough, or collapse she should specially note the character and rate of the pulse, take the temperature, observe the patient's expression, and inquire into the seat and nature of the pain. She may endeavour to relieve the pain by the application of hot fomentations, &c. 2. The medical man when he arrives will note the same points, with special reference to the mode of onset and character of the pain and will particularly observe the state of the abdomen: (1) whether distended, flat, or retracted; if there be distension, whether uniform and general or localised; (2) the presence or absence of respiratory movements of the abdominal wall, both above and below the umbilicus; (3) the presence or absence of tenderness and its extent and of rigidity or muscle spasm; and (4) the extent of liver dulness and the presence or absence of dulness in the flanks. He may also make a rectal examination for tenderness or fulness between the bladder and the rectum. In addition he will note (1) the facies, pallor and sweating; (2) the pulse, its rhythm, rate, and force, and repeat his observations at short intervals; (3) the temperature; (4) the respiration, its frequency and character; and (5) a blood count may be helpful.

---

[14] Brit. Med. Jour., vol. i., 1901, p. 1463.

[15] Johns Hopkins Hospital Reports, vol. viii., 1900.

[16] New York Medical Journal, May 4th, 1901.

[17] Loc. cit.

[illegible] perforation he will do [illegible] e has already selected [illegible] ecessary arrangements for operation, and he will probably also wish to summon a physician to share the responsibility of the diagnosis He will see to it that as a provision against shock there is a sufficiency of hot-water bottles, blankets, and stimulants; that there are plenty of basins and towels and a good supply of hot recently boiled water; that there are a suitable table [illegible] l that a carbolic compress [illegible] If there is shock it will [illegible] ion either subcutaneously or directly into the veins. An enema of a few ounces of strong black coffee may also be given. Hitherto nearly all the cases in which operations have been performed and lives have been saved have been in hospital practice. Let us hope that equally good results will before long be obtained in private practice. There can be no greater satisfaction to a general practitioner than to feel that he has snatched a patient from the very jaws of death. To this end he must be prepared for the emergency as well as possess the acumen to recognise it.

CASE 1. (From notes taken by Dr. J. L. Lock and Dr. T. W. S. Paterson, house physicians, and Mr. Gilks, Mr. Jays, and Mr. Snell, clinical clerks.)—A man, aged 22 years, was admitted to St. Thomas's Hospital on Oct. 17th, 1901. He first felt ill on the 13th and stayed in bed on the 14th, but went to work on the two following days. On the 16th his head ached so severely that he had to leave work by midday. He vomited on the evening of the 15th or 16th. He was described on admission as being a well-nourished young man. There were several rose-coloured spots, which faded on pressure, scattered over the lower thoracic region and the abdomen. The spleen was just palpable. The abdomen moved well and was nowhere tender. The tongue was slightly furred. The pulse-rate was 78 and the temperature was 102·6° F. The urine was normal and there were no signs of disease in the heart or the lungs. On the 21st he complained of headache and of pain in the abdomen. The Widal reaction test was negative. On the 23rd there was tenderness on pressure over the right iliac fossa. On the 29th it was noted: "Patient was sick last night, but has complained of nausea several times before. No abdominal pain now. Bowels usually opened naturally; semi-solid yellow stools. No complications. Never any delirium and sleep has been good and regular. Spots still present but spleen no longer palpable." On the 30th the Widal reaction test was positive On Nov. 2nd the patient had been sick during the night, but his tongue was cleaner and he was feeling better. The fever lasted about 30 days and then from the 13th to the 21st the temperature was normal. On the 23rd the patient ate some hard biscuits and chocolate which he had obtained surreptitiously. The same night his temperature rose to 102° and this rise proved to be the beginning of a relapse. On the 30th spots reappeared on the abdomen. The temperature reached 104° on Dec 1st and 2nd. The bowels continued constipated, as they had been throughout the illness, only acting every second or third day, usually after an enema. On the evening of the 3rd, at 10.20 P.M., the patient was awakened with a sharp pain in the right iliac fossa, so severe that it made him writhe. Soon, however, after passing a light-coloured motion he felt relieved and went off to sleep again. At 12 30 A.M. he again complained of pain. The abdomen was then distended and did not move at all in the lower part on respiration, but was resonant all over except in the flanks where shifting dulness could be made out. The liver dulness was completely obliterated. Tenderness in the right iliac region was extreme. The pulse was 95, full and regular, and the respiration rate was 26. As no urine had been passed for several hours 12 ounces of urine were drawn off by catheter, much to the relief of the patient. At 1.30 A.M. the abdomen was moving with respiration. The pulse was 95, full and regular; the respirations were 25; and the temperature was 102·4°. At 3.30 A.M. it was noted: "Patient has been to sleep. Abdomen moving with respiration. Liver dulness still absent. Tenderness in the right iliac fossa on deep palpation. Signs of free fluid in abdomen still present although less marked. Pulse 95; respirations 25; temperature 102·4°." At 5 30 A.M.: "Patient has had more sleep but has felt sick and has retched once. Abdomen tender and more distended. Movement with respiration less. Liver dulness absent. Signs of fluid in abdomen still obtained. Pulse 95, regular and full; respirations 26; temperature 102·4°." At 8 30 A.M.: "Patient has vomited some dark greenish-yellow fluid containing a clot like curdled milk. Abdomen tender. Movements absent in lower part. Fluid thrill detected for the first time; other signs as before. Pulse 95, regular and full; respirations 28; temperature 97°." Dr. Mackenzie was informed of the critical condition of the patient and at his request Mr. Battle saw the patient, on whom he decided to operate. Operation was performed at 10 30 A M., 12 hours after the onset of symptoms of perforation. The anæsthetic used was chloroform. An incision was made below the umbilicus in the median line and the peritoneum was opened. Immediately under the incision there was a collection of thin yellowish fluid and the intestines showed some exudation of lymph on the surface. Coming from the upper angle of the wound was a thin tongue of omentum adherent at its tip to a coil of small gut which appeared paler and more contracted than the coils around. On pulling on this piece of omentum the intestine rotated and showed a perforation *from which fluid exuded.* The perforation was sharply cut, somewhat circular, and about one-eighth of an inch across. A silk suture was placed across this opening to draw the *edges together* and it held well. The space affected was invaginated with Lembert's sutures (No. 00 silk). The abdomen was then washed out with sterilised saline solution and the wound was closed in layers, a tube being left in the lower part. On the 5th, the morning after the operation, it was noted: "The patient lies on his back, does not seem distressed, and takes an intelligent interest in things around. He has slept [illegible] at intervals during t [illegible] of brandy-and-milk [illegible] to keep them down. [illegible] alæ nasi dilate sligh [illegible] perature subnormal [illegible] dressed at 11 A.M. [illegible] and free from smel [illegible] well on respiration. [illegible] was noted: "Slept well yesterd [illegible] pain since No vomiting since [illegible] ounces of milk and soda-water [illegible] No abdominal distension or tenderness. Pulse less sunken. Temperature still subnormal." On the 74, good tension. 7th it was again noted: "Bowels have acted naturally three times, the first movements since the operation." The bowels were loose from the 11th to the 16th. The [illegible] dominal wound were taken out on the 12th. [illegible] eper part of the wound [illegible] three drachms of foul- [illegible] Otherwise the progress [illegible] ich was interrupted for [illegible] was uneventful. [illegible]

---

[18] Philadelphia Medical Journal, Jan. 19th, 1901.

CHART 1 (CASE 1).

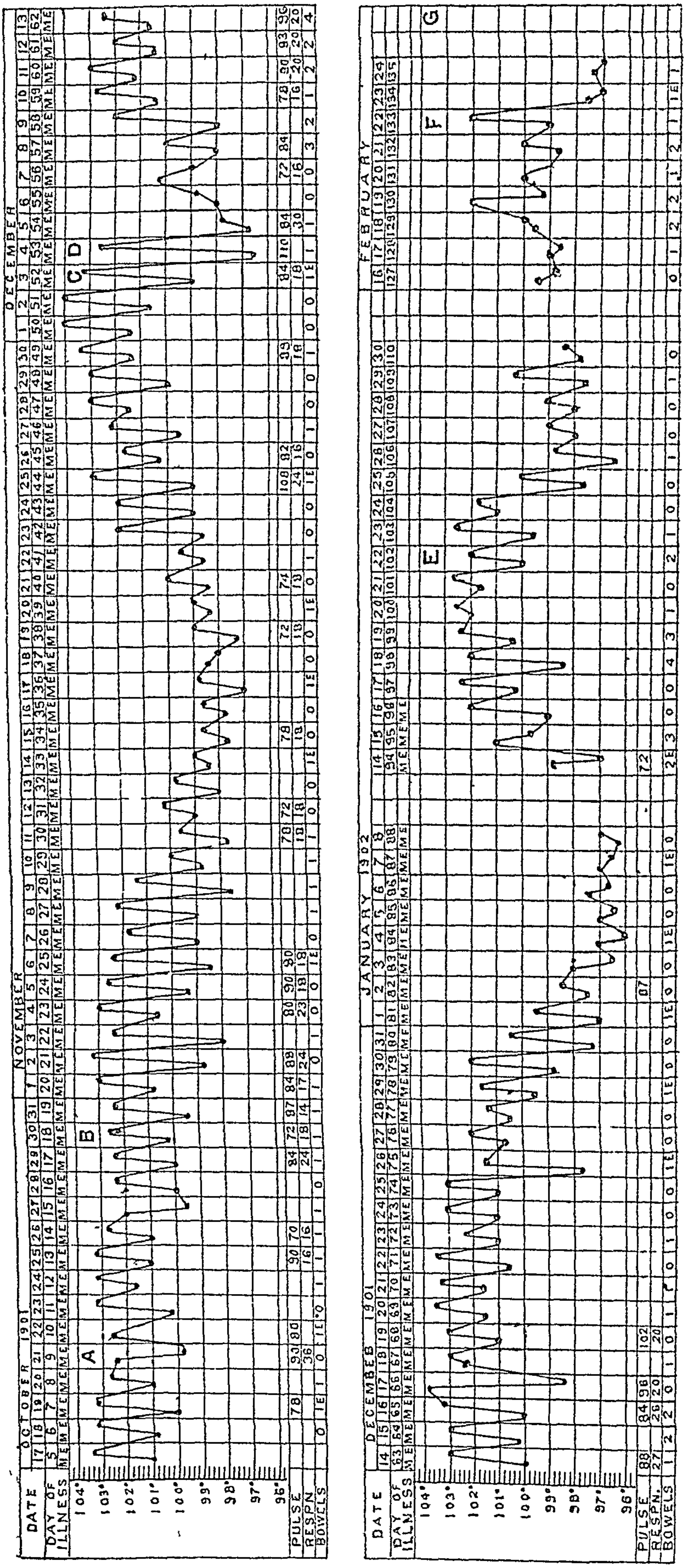
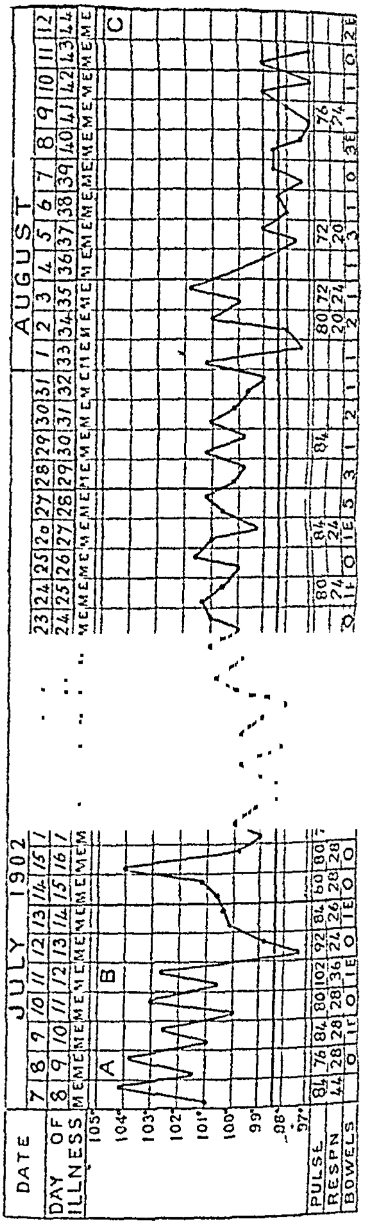


CHART 2 (CASE 2).



Description of Chart 1 (Case 1).

A. On this date the Widal reaction was tested and was found to be negative B. On Oct. 30th the Widal reaction was found to be positive. C. Symptoms of perforation commenced on Dec. 3rd at 10 20 P.M D. Mr. Battle operated on Dec. 4th at 10 30 A.M. E. On Jan 22nd the Widal reaction was found to be positive. F. On Feb. 22nd an abscess was incised on the right side of the old scar. G. The patient was discharged on April 9th, 1902.

Description of Chart 2 (Case 2)

A. On this date the Widal reaction was tested and was found to be negative B. Symptoms of perforation occurred on the morning of July 11th and Mr Battle operated the same day at 7.15 P.M. C. After this date the temperature remained normal and the patient was discharged recovered on Sept 10th, 1902.

a time by the perforation and operation resumed its ordinary course on Dec. 9th and ended on Jan. 1st, 1902. The temperature was subnormal from Jan. 3rd to 14th. The patient was allowed light solid food from the 5th. On the 14th he supplemented his diet with oranges which he had contrived to obtain. On the same day his temperature rose to 101° and pyrexia continued until the 25th. He then appeared to be doing very well. He was allowed solid food again on Feb. 1st and got up for the first time on the 12th. On the 18th he managed to procure and to eat an apple and a banana in spite of all his previous warnings. The same night the temperature rose to 100° F. and next day it was 102°. It looked as if a third relapse was beginning. On the 21st the abdomen was swollen, especially on the right side, where it was also painful and tender. Some peristaltic movement was visible. Next day the temperature was 102° and the abdomen was still tense and tender. There were paroxysms of pain which, starting from a point to the right of the umbilicus, travelled to the left flank and thence across the abdomen to the right flank. At 11 A.M. after an enema he had a copious motion and was relieved. At 7.30 P.M. Dr. Mackenzie saw the patient and thought there was probably some local suppuration. The abdomen was still very tense, especially on the right side, where it was also tender. It was motionless during quiet breathing but moved fairly well on deep inspiration. Mr. Battle opened the abdomen to the right of the old scar. The muscle seemed œdematous and on dividing it thin pus exuded which, in Mr. Battle's opinion, proceeded from a localised peritoneal abscess. A culture of the pus was taken and proved to be sterile. After this abscess was opened there was no more pyrexia. The patient vomited once on March 9th and five times on the 10th. On the evenings of the 10th and the 15th he again had paroxysmal attacks of severe abdominal pain, during which distinct peristalsis was visible, while gas could be felt and heard passing along the intestine. The pain was referred to the epigastrium and travelled from left to right. The region of the epigastrium was very tender and there was distension in the right iliac region. He had another attack of acute pain in the abdomen on the 31st. The abdomen was distended and vomiting occurred three times in three hours. This, however, fortunately proved to be the last attack of pain he had. He was discharged on April 9th and has kept well since.

CASE 2. (From notes taken by Dr. K. E. Crompton, house physician, and Mr. Pinches, clinical clerk.)—A man, aged 28 years, was admitted to St. Thomas's Hospital on July 7th, 1902. On June 30th, after a heavy day's work, he had been suddenly taken ill with pains shooting across the forehead and of a stabbing character in the back. He worked the next day although the pains grew worse. On July 2nd he again went to work, but feeling so ill he soon returned home and went to bed. On the morning of the 3rd he woke up feeling very chilly, shivered, and then sweated profusely and his pains continued during the day. On the 4th he had several rigors and vomited after food. On the 5th, however, he was able to go out and to visit his medical attendant. On the 6th he felt pain in the epigastric region and his head and back were worse. On July 7th, as he was on his way to the hospital, he turned giddy and fell. He was a well-developed man with flushed perspiring face and slightly sunken eyes. The abdomen was well covered and moved well. There was slight distension in the left iliac fossa which, as well as the epigastrium, was tender to palpation. There were no typical typhoid fever spots visible. The lower end of the spleen was just palpable below the left costal margin. The tongue was very dry, white at the edges, and covered with a thick brown fur down the centre. There were no abnormal physical signs in the heart or lungs. His pulse was 80, full and bounding, and his respirations were 36. The urine was normal. He had had no action of the bowels since the commencement of his illness. The Widal test was negative on the 8th. The variations of the temperature, from 100° to 103° F., during the first four days are to be seen on the chart. On the morning of the 11th it was noted: "Pain in the epigastric region on coughing, where there is some tenderness on pressure. Slight soreness of throat. Headache much relieved. Tongue cleaner. Bowels well opened after enema. Temperature 100·6°; pulse 68, good tension; respirations 26." At 1.30 P.M. there was a sudden onset of abdominal pain, referred principally to the neighbourhood of the umbilicus, but also to the right iliac region. Vomiting occurred soon after the onset of pain. He was seen at 2.15 P.M. and then the abdomen moved poorly on respiration, the right side especially being rigid, resistant, and tender to palpation. The pulse was 84 and the temperature was 102·6°. At 4.30 P.M. he looked much worse. His expression was anxious and his eyes were sunken. He lay with the knees drawn up and complained much of the abdominal pain which the application of hot fomentations had failed to relieve. The pain, which was most severe round the umbilicus, was aggravated by coughing or taking a deep breath. The abdomen did not move with respiration and was held rigid. The resistance and tenderness were very marked, especially in the right iliac region. There was no dulness in the flanks and the liver dulness was not encroached on. The pulse was now 104 and smaller than before, but the temperature was unaltered. The symptoms and the result of examination clearly pointed, it was thought, to perforation. Mr. Battle operated at 7.15 P.M., five and three quarter hours after the onset of the acute pain. The anæsthetic was gas and ether. A four-inch vertical incision was made in the middle line from about one inch below the umbilicus. The peritoneum was divided and when the coils of intestine were exposed some thin, light-yellow pus-like fluid containing some small yellowish masses was seen separating them, but there was no appreciable fæcal smell. On tracing the small intestine downwards towards the ileum there was soon found a round clean-edged perforation about a quarter of an inch in diameter with a slough adherent to it on its inner side. The perforation was closed by Lembert's sutures. After the abdominal cavity had been washed out the peritoneum was closed with silk stitches and the skin incision with a continuous stitch. The patient's condition at the end of the operation was good. He passed a quiet night but did not sleep much. Hypodermic injections of one-twentieth of a grain of hydrochlorate of strychnine were given at 8.15 and 11 P.M. and at 4 A.M., and a *hypodermic injection of a quarter of a grain of tartrate* of morphia was given at 11 P.M. Vomiting occurred twice in the night. Spoonfuls of hot water were given when asked for. On the next morning (the 12th) he looked decidedly better and except for some abdominal pain on coughing he was quite comfortable. The tongue was moister and cleaner. The pulse was 92 and the temperature was 97°. On the 14th he passed a fairly good night. His bowels were opened by enema on the previous day. There was no pain except on coughing and then only at the site of incision. The pulse was 88, full, and the temperature was 100·6°. His diet was one of milk and beef-tea. The Widal reaction test, which was negative before the perforation, was now found to be positive. The bowels were constipated, only acting after an enema, until the 27th, when five loose stools, three of which contained blood, were passed in 24 hours. On the 28th the bowels acted three times, a little blood being present each time. On August 2nd there were two loose stools, in one of which there were a few streaks of blood. After August 4th the temperature did not rise above 99° and convalescence set in. The only trouble was the abdominal wound which gaped at first and suppurated, necessitating dressing four times a day with chlorinated soda for several weeks. It did not heal up completely until the beginning of September. The patient was discharged well on Sept. 10th, but was, however, readmitted on Sept. 18th on account of pain in the right knee. There was a tender spot on the extensor surface of the right thigh three inches above the patella. The right inguinal glands were slightly enlarged but were not tender. With rest in bed, hot fomentations, &c., the pain subsided and the patient was again discharged on Oct. 17th. He resumed his work as a corn porter and continued well and strong until January, 1903. He was then admitted under Mr. [illegible] of severe pain in the abdomen [illegible] k of corn. He [illegible] his pain to the region [illegible] wever, nothing abnormal to be seen and his symptoms soon subsided with rest in bed and the application of hot fomentations.

DURSLEY (GLOUCESTERSHIRE) DRAINAGE SCHEME.—On Sept. 18th, at the meeting of the joint committee appointed to deal with the Dursley and Cam drainage scheme, a tender for £13,362 was accepted for carrying out the work. A commencement will be made in a few days and Mr. Eyre, who contributed £1000 towards the cost, will perform the opening ceremony.

An Address

ON

SOME PROBLEMS ARISING FROM THE VARIATIONS IN THE DEVELOPMENT OF THE SKULL AND THE BRAIN.

Delivered before the Anthropological Section of the British Association for the Advancement of Science at Southport in September, 1903,

BY JOHNSON SYMINGTON, M.D. EDIN., F.R.S.,

PRESIDENT OF THE SECTION; PROFESSOR OF ANATOMY AT, AND REGISTRAR OF, QUEEN'S COLLEGE, BELFAST.

LADIES AND GENTLEMEN,—It is now nearly 20 years since anthropology attained to the dignity of being awarded a special and independent section in this Association and I believe it is generally admitted that during this period the valuable nature of many of the contributions, the vigour of the discussions, and the large attendance of members have amply justified the establishment and continued existence of this section. While the multifarious and diverse nature of the subjects which are grouped under the term "anthropology" gives a variety and a breadth to our proceedings which are very refreshing in this age of minute specialism, I feel that it adds very considerably to the difficulty of selecting a subject for a presidential address which will prove of general interest. A survey of the recent advances in our knowledge of the many important questions which come within the scope of this section would cover too wide a field for the time at my disposal, while a critical examination of the various problems that still await solution might expose me to the temptation of pronouncing opinions on subjects regarding which I could not speak with any real knowledge or experience. To avoid such risks I have decided to limit my remarks to a subject which comes within the range of my own special studies and to invite your attention to a consideration of some problems arising from the variations in the development of the skull and the brain.

Since the institution of this section the development, growth, and racial peculiarities of both the skull and the brain, and the relation of these two organs to each other have attracted an ever-increasing amount of attention. The introduction of new and improved methods for the study of the structure of the brain and the activity of an able band of experimentalists have revolutionised our knowledge of the anatomy and physiology of the higher nerve centres. The value of the results thus obtained is greatly enhanced by the consciousness that they bear the promise of still greater advances in the near future. If the results obtained by the craniologist have been less marked, this arises mainly from the nature of the subject, and is certainly not due to any lack of energy on their part. Our craniological collections are continually increasing and the various prehistoric skull-caps from the Neanderthal to the Trinil still form the basis of interesting and valuable memoirs. While the additions to our general knowledge of cerebral anatomy and physiology have been so striking those aspects of these subjects which are of special anthropological interest have made comparatively slight progress and cannot compare in extent and importance with the advances based upon a study of fossil and recent crania. These facts admit of a ready explanation. Brains of anthropological interest are usually difficult to procure and to keep, and require the use of special and complicated methods for their satisfactory examination, while skulls of the leading races of mankind are readily collected, preserved, and studied. Hence it follows that the crania in our anthropological collections are as numerous, well preserved, and varied as the brains are few in number and defective, both in their state of preservation and representative character. It may reasonably be anticipated that improved methods of preservation and the growing recognition on the part of anthropologists, museum curators, and collectors of the importance of a study of the brain itself will to some extent at least remedy these defects; but so far as prehistoric man is concerned, we can never hope to have any direct evidence of the condition of his higher nerve centres, and must depend for an estimate of his cerebral development upon those more or less perfect skulls which fortunately have resisted for so many ages the corroding hand of time.

I presume we will all admit that the main value of a good collection of human skulls depends upon the light which they can be made to throw upon the relative development of the brains of different races. Such collections possess few, if any, brains taken from these or corresponding [illegible] we are thus dependent upon the stu[illegible] an estimate of brain development.

Vigorous attacks have not infrequently been made upon the craniometric systems at present in general use, and the elaborate tables, compiled with so much trouble, giving the circumference, diameters, and corresponding indices of various parts of the skull are held to afford but little information as to the real nature of skull variations, however useful they may be for purposes of classification. While by no means prepared to express entire agreement with these critics, I must admit that craniologists as a whole have concentrated their attention mainly on the external contour of the skull and have paid comparatively little attention to the form of the cranial cavity. The outer surface of the cranium presents features which are due to other factors than brain development, and an examination of the cranial cavity not only gives us important information as to brain form but by affording a comparison between the external and internal surfaces of the cranial wall it gives a valuable clue to the real significance of the external configuration Beyond determining its capacity we can do but little towards an exact investigation of the cranial cavity without making a section of the skull. 40 years ago Professor Huxley, in his work "On the Evidence of Man's Place in Nature," showed the importance of a comparison of the basal with the vaulted portion of the skull and maintained that until it should become "an opprobrium to an ethnological collection to possess a single skull which is not bisected longitudinally" there would be "no safe basis for that ethnological craniology which aspires to give the anatomical characters of the crania of the different races of mankind." Professor J. Cleland and Sir William Turner have also insisted upon this method of examination, and only two years ago Professor D. J. Cunningham, in his presidential address to this section quoted with approval the forcible language of Huxley. The curators of craniological collections appear, however, to possess an invincible objection to any such treatment of the specimens under their care. Even in the Hunterian Museum in London, where Huxley himself worked at this subject, among several thousands of skulls scarcely any have been bisected longitudinally or had the cranial cavity exposed by a section in any other direction. The method advocated so strongly by Huxley is not only essential to a thorough study of the relations of the basi cranial axis to the vault of the cranium and to the facial portion of the skull, but also permits of casts being taken of the cranial cavity, a procedure which, I would venture to suggest, has been too much neglected by craniologists.

Every student of anatomy is familiar with the finger-like depressions on the inner surface of the cranial wall which are described as the impress of the cerebral convolutions, but their exact distribution and the degree to which they are developed according to age, sex, race, &c., still remain to be determined definitely. Indeed, there appears to be a considerable difference of opinion as to the degree of approximation of the outer surface of the brain to the inner surface of the cranial wall. Thus the brain is frequently described as lying upon a water bed or as swimming in the cerebro-spinal fluid, while Hyrtl speaks of this fluid as a "ligamentum suspensorium" for the brain. Such descriptions are misleading when applied to the relation of the cerebral convolutions to the skull. There are, it is true, certain parts of the brain which are surrounded and separated from the skull by a considerable amount of fluid. These, however, are mainly the lower portions, such as the medulla oblongata and pons Varolii, which may be regarded as prolongations of the spinal cord into the cranial cavity. As they contain the centres controlling the action of the circulatory and respiratory organs they are the most vital parts of the central nervous system and hence need special protection. They are not, however, concerned with the regulation of complicated voluntary movements, the reception and storage of sensory impressions from lower centres, and the activity of the various mental processes. These functions we must associate with the higher parts of the brain and especially with the convolutions of the cerebral hemispheres.

If a cast be taken of the cranial cavity and compared with the brain which had previously been carefully hardened *in situ* before removal, it will be found that the cast not only corresponds in its general form to that of the brain, but shows a considerable number of the cerebral fissures and convolutions. This moulding of the inner surface of the skull to the adjacent portions of the cerebral hemispheres is usually much more marked at the base and sides than over the vault. Since the specific gravity of the brain tissue is higher than that of the cerebro-spinal fluid, the cerebrum tends to sink towards the base and the fluid to accumulate over the vault; hence, probably, these differences admit of a simple mechanical explanation. Except under abnormal conditions, the amount of cerebro-spinal fluid between the skull and the cerebral convolutions is so small that from a cast of the cranial cavity we can obtain not only a good picture of the general shape and size of the higher parts of the brain but also various details as to the convolutionary pattern. This method has been applied with marked success to the determination of the characters of the brain in various fossil lemurs by Dr. Forsyth-Major and Professor R. Burckhardt, and P[illegible] of such cast[illegible] The interest[illegible] ment of the [illegible] and their rel[illegible] apes, and various other mammals, have directed special attention to a very interesting field of inquiry. As is well known the marked prominence at the base of the human skull, separating the anterior from the middle fossa, fits into the deep cleft between the frontal and temporal lobes of the brain, and Schwalbe has shown that this ridge is continued—of course, in a much less marked form—along the inner surface of the lateral wall of the skull, so that a cast of the cranial cavity presents a shallow but easily recognised groove corresponding to the portion of the Sylvian fissure of the brain separating the frontal and parietal lobes from the temporal lobe. Further, there is a distinct depression for the lodgment of the inferior frontal convolution and a cast of the middle cranial fossa shows the three external temporal convolutions.

We must now turn to the consideration of the relations of the outer surface of the cranium to its inner surface and to the brain. This question has engaged the attention of experts as well as the "man in the street" since the time of Gall and Spurzheim and one might naturally suppose that the last word had been said on the subject. This, however, is far from being the case. All anatomists are agreed that the essential function of the cranium is to form a box for the support and protection of the brain, and it is generally conceded that during the processes of development and growth the form of the cranium is modified in response to the stimulus transmitted to it by the brain. In fact it is brain growth that determines the form of the cranium and not the skull that moulds the brain into shape. This belief, however, need not be accepted without some reservations. Even the brain may be conceived as being influenced by its immediate environment. There are probably periods of development when the form of the brain is modified by the resistance offered by its coverings and there are certainly stages when the brain does not fully occupy the cranial cavity.

At an early period in the phylogeny of the vertebrate skull the structure of the greater part of the cranial wall changes from membranous tissue into cartilage, the portion persisting as membrane being situated near the median dorsal line. In the higher vertebrates the rapid and early expansion of the dorsal part of the fore-brain is so marked that the cartilaginous growth fails to keep pace with it, and more and more of the dorsal wall of the cranium remains membranous, and subsequently ossifies to form membrane bones. Cartilage, though constituting a firmer support to the brain than membrane, does not possess the same capacity of rapid growth and expansion. The head of a young child is relatively large, and its skull is distinguished from that of an adult by the small size of the cartilaginous base of the cranium as compared with the membranous vault. The appearance of top-heaviness in the young skull is gradually obliterated as age advances by the cartilage continuing slowly to grow after the vault has practically ceased to enlarge. These changes in the shape of the cranium are associated with corresponding alterations in that of the brain and it appears to me that we have here an illustration of how the conditions of skull growth may modify the general form of the brain.

Whatever may be the precise influences that determine skull and brain growth, there can be no doubt but that within certain limits the external form of the cranium serves as a reliable guide to the shape of the brain. Statements such as those by Dr. J. Deniker[2] "that the inequalities of the external table of the cranial walls have no relation whatever with the irregularities of the inner table and still less have anything in common with the configuration of the various parts of the brain," are of too general and sweeping a character. Indeed, various observers have drawn attention to the fact that in certain regions the outer surface of the skull possesses elevations and depressions which closely correspond to definite fissures and convolutions of the brain. Many years ago Sir William Turner, who was a pioneer in cranio-cerebral topography, found that the prominence on the outer surface of the parietal bone, known to anatomists as the parietal eminence, was situated directly superficial to a convolution of the parietal lobe of the brain, which he consequently very appropriately named "the convolution of the parietal eminence." Quite recently Professor Schwalbe has shown that the position of the third or inferior frontal convolution is indicated by a prominence on the surface of the cranium in the anterior part of the temple. This area of the brain is of special interest to all students of cerebral anatomy and physiology, since it was the discovery by the illustrious French anthropologist and physician, M. Broca, that the left inferior frontal convolution was the centre for speech, that laid the scientific foundation of our present knowledge of localisation of function in the cerebral cortex. This convolution is well known to be much more highly developed in man than in the anthropoid apes and the presence of a human cranial speech-bump is usually easily demonstrated. The faculty of speech, however, is such a complicated cerebral function that I would warn the "new" phrenologist to be cautious in estimating the loquacity of his friends by the degree of prominence of this part of the skull, more particularly as there are other and more reliable methods of observation by which he can estimate this capacity.

In addition to the prominences on the outer surface of the cranium, corresponding to the convolutions of the parietal eminence and the left inferior frontal convolution, the majority of skulls possess a shallow groove marking the position of the Sylvian point and the course of the horizontal limb of the Sylvian fissure. Below these two other shallow oblique grooves indicate the line of the cerebral fissures which divide the outer surface of the temporal lobe into its three convolutions, termed superior, middle, and inferior. Most of these cranial surface markings are partially obscured in the living body by the temporal muscle, but they are of interest as showing that in certain places there is a close correspondence in form between the external surface of the brain and that of the skull. There are, however, distinct limitations in the degree to which the various cerebral fissures and convolutions impress the inner surface of the cranial wall or are represented by inequalities on its outer aspect. Thus over the vault of the cranium the position of the fissure of Rolando and the shape of the cerebral convolutions in the so-called motor area, which lie in relation to this fissure, cannot usually be detected from a cast of the cranial cavity and are not indicated by depressions or elevations on the surface of the skull, so that surgeons in planning the seats of operations necessary to expose the various motor centres have to rely mainly upon certain linear and angular measurements made from points frequently remote from these centres.

The cranium is not merely a box developed for the support and protection of the brain, and more or less accurately moulded in conformity with the growth of this organ. Its antero-lateral portions afford attachments to the muscles of mastication and support the jaws and teeth, while its posterior [illegible]

---

[1] Ueber die Beziehungen zwischen Innenform und Aussenform des Schädels, Deutsches Archiv für Klinische Medicin, 1902.

[2] The Races of Man, p. 63.

view that the evolution of man from microcephaly to macrocephaly has been associated with the passage from a macrodontic to a microdontic condition. The modifications in the form of the cranium due to the influence of the organs of mastication have been exerted almost entirely upon its external table; hence external measurements of the cranium, as guides to the shape of the cranial cavity and indications of brain development, while fairly reliable in the higher races, become less and less so as we examine the skulls of the lower races, of prehistoric man, and of the anthropoid apes.

One of the most important measurements of the cranium is that which determines the relation between its length and breadth and thus divides skulls into long or short, together with an intermediate group neither distinctly dolichocephalic nor brachycephalic. These measurements are expressed by an index in which the length is taken as 100. If the proportion of breadth to length is 80 or upwards, the skull is brachycephalic; if between 75 and 80, mesaticephalic; and below 75, dolichocephalic. Such a measurement is not so simple a matter as it might appear at first sight and craniologists may themselves be classified into groups according as they have selected the nasion, or depression at the root of the nose, the glabella, or prominence above this depression, and the ophryon, a spot just above this prominence, as the anterior point from which to measure the length. In a young child this measurement would practically be the same whichever of these three points was chosen, and each point would be about the same distance from the brain. With the appearance of the teeth of the second dentition and the enlargement of the jaws the frontal bone in the region of the eyebrows and just above the root of the nose thickens and its outer table bulges forwards so that it is now no longer parallel with the inner table. Between these tables air cavities gradually extend from the nose, forming the frontal sinuses. Although the existence and significance of these spaces and their influence on the prominence of the eyebrows were the subject of a fierce controversy more than half a century ago between the phrenologists and their opponents it is only recently that their variations have been carefully investigated.

The frontal sinuses are usually supposed to vary according to the degree of prominence of the glabella and the supra-orbital arches. This, however, is not the case. Thus Schwalbe[3] has figured a skull in which the sinuses do not project as high as the top of the glabella and supra-orbital prominences and another in which they extend considerably above these projections. Further, Dr. A. Logan Turner,[4] who has made an extensive investigation into these cavities, has shown that in the aboriginal Australian, in which this region of the skull is unusually prominent, the frontal sinuses are frequently either absent or rudimentary. The ophryon has been selected by some craniologists as the anterior point from which to measure the length of the skull under the impression that the frontal sinuses do not usually reach above the glabella. Dr. Logan Turner, however, found that out of 174 skulls in which the frontal sinuses were present in 130 the sinuses extended above the ophryon. In 71 skulls the depth of the sinus at the level of the ophryon varied from two millimetres to 16 millimetres, the average being 5·2 millimetres, while in the same series of skulls the depth at the glabella varied from three millimetres to 18 millimetres, with an average depth of 8·5 millimetres. It thus appears that the selection of the ophryon in preference to the glabella, as giving a more accurate clue to the length of the brain, is based upon erroneous assumptions, and that neither point can be relied upon in the determination of the anterior limit of the cranial cavity. The difficulties of estimating the extent of the cranial cavity by external measurements and the fallacies that may result from a reliance upon this method are especially marked in the case of the study of the prehistoric human calvaria, such as the Neanderthal and the Trinil and the skulls of the anthropoid apes.

Statistics are popularly supposed to be capable of proving almost anything, and certainly if you allow craniologists to select their own points from which to measure the length and breadth of the cranium they will furnish you with tables of measurements showing that one and the same skull is dolichocephalic, mesaticephalic, and brachycephalic. Let us take as an illustration an extreme case, such as the skull of an adult male gorilla. Its glabella and supra-orbital arches will be found to project forwards, its zygomatic arches outwards, and its transverse occipital crests backwards, far beyond the anterior, lateral, and posterior limits of the cranial cavity. These outgrowths are obviously correlated with the enormous development of the muscles of mastication and those of the back of the neck. In a specimen in my possession the greatest length of the cranium—i.e., from glabella to external occipital protuberance—is 195 millimetres and the greatest breadth, taken between the outer surfaces of the zygomatic processes of the temporal bone, is 172 millimetres, giving the marked brachycephalic index of 88·21. The zygomatic processes, however, may reasonably be objected to as indicating the true breadth, and the side wall of the cranium just above the line where the root of this process springs from the squamous portion of the temporal bone will certainly be much nearer the cranial cavity. Measured in this situation the breadth of the cranium is 118 millimetres, which gives a length-breadth index 60·51 and thus represents the skull as decidedly dolichocephalic. The transverse occipital crests and the point where these meet in the middle line to form the external occipital protuberance are much more prominent in the male than in the female gorilla, and the estimate of the length of the cranium in this male gorilla may be reduced to 160 millimetres by selecting the base of the protuberance in place of its posterior extremity as the posterior end measurement. This raises the index to 73·75 and places the skull near the mesaticephalic group. At the anterior part of the skull the prominent glabella is separated from the inner table of the skull by large air sinuses, so that on a median section of the skull the distance from the glabella to the nearest part of the cranial cavity is 36 millimetres. We have here, therefore, another outgrowth of the cranial wall which in an examination of the external surface of the skull obscures the extent of the cranial cavity. Accordingly, the glabella cannot be selected as the anterior point from which to measure the length of the cranium and must, like the zygomatic arches and occipital protuberance, be excluded from our calculations if we desire to determine a true length-breadth index. The difficulty, however, is to select a definite point on the surface of the cranium to represent its anterior end which will be free from the objections justly urged against the glabella. Schwalbe suggests the hinder end of the supraglabellar fossa, which he states often corresponds to the beginning of a more or less distinctly marked frontal crest. I have found this point either difficult to determine or too far back. Thus in my male gorilla the posterior end of this fossa formed by the meeting of the two temporal ridges was 56 millimetres behind the glabella and only 24 millimetres from the bregma, while in the female gorilla the temporal ridges do not meet, but there is a low median frontal ridge which may be considered as bounding posteriorly the supraglabellar fossa. This point is 22 millimetres from the glabella and between 50 and 60 millimetres in front of the bregma.

I would suggest a spot in the median line of the supraglabellar fossa which is crossed by a transverse line uniting the posterior borders of the external angular processes of the frontal bone. I admit this plan is not free from objections, but it possesses the advantages of being available for both male and female skulls. In my male skull the selection of this point diminishes the length of the cranium by 25 millimetres, thus reducing it to 137 millimetres. The breadth being calculated at 114 millimetres, the index is 83·21, and hence distinctly brachycephalic. The length of the cranial cavity is 118 millimetres and the breadth 96 millimetres, and the length-breadth index is thus the brachycephalic one of 81·36.

I have given these somewhat detailed references to the measurements of this gorilla's skull because they show in a very clear and obvious manner that from an external examination of the skull one might easily be misled as to the size and form of the cranial cavity, and that, in order to determine from external measurements the proportions of the cranial cavity, skull outgrowths due to other factors than brain growth must be rigorously excluded. Further, these details will serve to emphasise the interesting fact that the gorilla's skull is decidedly brachycephalic. This character is by no means restricted to the gorilla, for it has been clearly proved by Virchow, Schwalbe, and others that all the anthropoid apes are markedly round-headed. Ever since the introduction by the illustrious Swedish anthropologist Anders Retzius of a classification of skulls according to the proportions between their length and breadth great attention has been paid to this peculiarity in different races of mankind. It has been generally held that brachycephaly indicates a higher type of skull than dolichocephaly and that the increase in the size of the brain in the higher races has tended to produce a brachycephalic skull. When the cranial walls are subject to excessive internal pressure, as in hydrocephalus, the skull tends to become distinctly brachycephalic, as a given extent of wall gives a greater internal cavity in a spherical than an oval form. In estimating the value of this theory as to the evolutionary line upon which the skull has travelled it is obvious that the brachycephalic character of the skulls of all the anthropoid apes is a fact which requires consideration.

---

[3] Studien uber Pithecanthropus erectus, Zeitschrift für Morphologie und Anthropologie, Band i., 1899.

[4] The Accessory Sinuses of the Nose, 1901.

Although an adult male gorilla such as I have selected presents in an extreme degree outgrowths from the cranial wall masking the true form of the cranial cavity, the same condition, though to a less marked extent, is met with in the human subject. Further, it is interesting to note that the length of the skull is more liable to be increased by such growths than the breadth, since they occur especially over the lower part of the forehead and to a less degree at the back of the skull, while the side walls of the cranium in the region of its greatest breadth generally remain thin.

Few if any fossils have attracted an equal amount of attention or given rise to such keen controversies as the Neanderthal and the Trinil skull-caps. According to some authorities both these skull-caps are undoubtedly human, while others hold that the Neanderthal belongs to an extinct species of the genus Homo, and the Trinil is the remains of an extinct genus—*Pithecanthropus erectus* of Dubois—intermediate between man and the anthropoids. One of the most obvious and easily recognised peculiarities of the skull-caps is the very marked prominence of the supra-orbital arches. The glabella-occipital length of the Neanderthal is 204 millimetres and the greatest transverse diameter, which is over the parietal region, is 152 millimetres—an index of 74·51—while the much smaller Trinil calvaria, with a length of 181 millimetres and a breadth of 130 millimetres, has an index of 71·8. Both of these skulls are therefore slightly dolichocephalic.

Schwalbe has corrected these figures by making reductions in their lengths on account of the frontal "outworks," so that he estimates the true length-breadth index of the Neanderthal as 80 and that of the Trinil as 75·5. These indices, thus raised about 5 per cent., are considered to represent approximately the length-breadth index of the cranial cavity. A comparison of the external and internal measurements of many recent skulls with prominent glabellæ would, I suspect, show a greater difference than that calculated by Schwalbe for the Neanderthal and Trinil specimens. In a male skull, probably an aboriginal Australian, with a cranial capacity of 1227 cubic centimetres I found that the glabella-occipital length was 189 millimetres, and the transverse diameter at the parieto-squamous suture 127 millimetres, which gives an index of 67·20 and makes the skull decidedly dolichocephalic. The length of the cranial cavity, however, was 157 millimetres and the breadth 121 millimetres (an index of 77·07 and a difference of nearly 10 per cent.), so that while from external measurements the skull is distinctly dolichocephalic, the proportions of its cavity are such that it is mesaticephalic. It is probable that many skulls owe their dolichocephalic reputation simply to the prominence of the glabella and supra-orbital ridges. An excessive development of these structures is also liable to give the erroneous impression of a retreating forehead. In the Australian skull just mentioned the thickness of the cranial wall at the glabella was 22 millimetres; from this level upwards it gradually thin[illegible] millimetres above the glabella it was only six [illegible] bisected skull was placed in [illegible] anterior surface of the frontal [illegible] upwards and distinctly backwards, while the pos[illegible] cerebral surface was inclined upwards and forwards. In fact, the cranial cavity in this region was separated from the lower part of the forehead by a wedge-shaped area having its apex upwards and its base below at the glabella. The cranial wall opposite the glabella is not appreciably thicker in the Neanderthal calvaria than in the Australian skull to which I have already referred, and the form of the cranial cavity is not more masked by this prominence in the Neanderthal than in many of the existing races.

Although the Neanderthal skull is by no means complete, the base of the cranium and the face bones being absent, still those parts of the cranial wall are preserved that are specially related to the portion of the brain which subserves all the higher mental processes. It includes the frontal, parietal, and upper part of the occipital bones, with parts of the roof of the orbits in front and of the squamous division of the temporal bones at the sides. On its inner or cranial aspect there are markings by which the boundaries between the cerebrum and the cerebellum can be determined. In a profile view of such a specimen an inio-glabellar line can be drawn which will correspond very closely to the lower boundary of the cerebrum and indicate a horizontal plane above which the vaulted portion of the skull must have contained nearly the whole of the cerebrum.

Schwalbe[5] has devised a series of measurements to illustrate what he regards as essential differences between the Neanderthal skull-cap an[illegible] portion of the human skull. From the [illegible] at right angles to the hig[illegible] paring the length of these two lines we can determine the length-height index. According to Schwalbe this is 40·4 in the Neanderthal, while the minimum in the human skull is 52. He further shows that the frontal portion of the vault, as represented by a glabella-bregmatic line, forms a smaller angle with the base or inio-glabellar line, and that a vertical line from the posterior end of the frontal bone (bregma) cuts the inio-glabellar further back than in the human subject. Professor King of Galway attached special importance to the shape and proportions of the parietal bones and more particularly to the fact that their mesial borders are shorter than the lower or temporal, whereas the reverse is the case in recent man. This feature is obviously related to the defective expansion of the Neanderthal vault and Professor Schwalbe also attributes considerable significance to this peculiarity.

Another distinctive feature of the Neanderthal skull is the relation of the orbits to the cranial wall. Schwalbe shows that its brain-case takes a much smaller share in the formation of the roof of the orbit than it does in recent man, and Professor King pointed out that a line from the anterior inferior angle of the external orbital process of the frontal bone, drawn at right angles to the inio-glabellar line, passed in the Neanderthal in front of the cranial cavity, whereas in man such a line would have a considerable portion of the frontal part of the brain-case anterior to it.

From the combined results of these and other measurements Schwalbe arrives at the very important and interesting conclusion that the Neanderthal skull possesses a number of important peculiarities which differentiate it from the skulls of existing man and show an approximation towards those of the anthropoid apes. He maintains that in recognising with King[6] and Cope[7] the Neanderthal skull as belonging to a distinct species, Homo Neanderthalensis, he is only following the usual practice of zoologists and palæontologists by whom specific characters are frequently founded upon much less marked differences. He maintains that as the Neanderthal skull stands in many of its characters nearer to the higher anthropoids than to recent man, if the Neanderthal type is to be included under the term Homo sapiens then this species ought to be still more extended so as to embrace the anthropoids.

It is interesting to turn from a perusal of these opinions recently advanced by Schwalbe to consider the grounds on which Huxley and Turner, about 40 years ago, opposed the view, which was then being advocated, that the characters of the Neanderthal skull were so distinct from those of any of the existing races as to justify the recognition of a new species of the genus Homo. Huxley, while admitting that it was "the most pithecoid of human skulls," yet holds that it "is by no means so isolated as it appears to be at first, but forms in reality the extreme term of a series leading gradually from it to the highest and best developed of human crania." He states that "it is closely approached by certain Australian skulls and even more nearly by the skulls of certain ancient people who inhabited Denmark during the stone period." Turner's[8] observations led him to adopt a similar view to that advanced by Huxley. He compared the Neanderthal calvaria with savage and British crania in the Anatomical Museum of the University of Edinburgh and found amongst them specimens closely corresponding to the Neanderthal type.

While yielding to no one in my admiration for the thoroughness and ability with which Schwalbe has conducted his elaborate and extensive investigations on this question I must confess that, in my opinion, he has not sufficiently recognised the significance of the large cranial capacity of the Neanderthal skull in determining the zoological position of its owner or made sufficient allowance for the great variations in form which skulls undoubtedly human may present. The length and breadth of the Neanderthal calvaria are distinctly greater than in many living races and compensate for its defect in height, so that it was capable of lodging a brain fully equal in volume to that of many existing savage races and at least double that of any anthropoid ape.

---

[5] Ueber die specifischen Merkmale des Neanderthalschädels, Verhandlungen der Anatomischen Gesellschaft in Bonn, 1901.

[6] The Reputed Fossil Man of the Neanderthal, Journal of Science, 1864.

[7] The Genealogy of Man, The American Naturalist, vol. xxvii., 1893.

[8] The Fossil Skull Controversy, Journal of Science, 1864.

A number of the characters upon which Schwalbe relies in differentiating the Neanderthal skull-cap are due to an appreciable extent to the great development of the glabella and supra-orbital arches. Now these processes are well known to present very striking variations in existing human races. They are usually supposed to be developed as buttresses for the purpose of affording support to the large upper jaw and enable it to resist the pressure of the lower jaw due to the contraction of the powerful muscles of mastication. These processes, however, are usually feebly marked in the microcephalic, prognathous, and macrodont negro skull and may be well developed in the macrocephalic and orthognathous skulls of some of the higher races. Indeed, their variations are too great and their significance too obscure for them to form a basis for the creation of a new species of man. Both Huxley and Turner have shown that the low vault of the Neanderthal calvaria can be closely paralleled by specimens of existing races.

If the characters of the Neanderthal calvaria are so distinctive as to justify the recognition of a new species, a new genus ought to be made for the Trinil skull-cap. In nearly every respect it is distinctly lower in type than the Neanderthal, and yet many of the anatomists who have expressed their opinion on the subject maintain that the Trinil specimen is distinctly human.

Important and interesting as are the facts which may be ascertained from a study of a series of skulls regarding the size and form of the brain, it is evident that there are distinct limits to the knowledge to be obtained from this source. Much additional information as to racial characters would undoubtedly be gained had we collections of brains at all corresponding in number and variety with the skulls in our museums. We know that as a rule the brains of the less civilised races are smaller and the convolutions and fissures simpler than those of the more cultured nations, beyond this but little more has been definitely determined.

As the results of investigations in human and comparative anatomy, physiology, and pathology, we know that definite areas of the cerebral cortex are connected with the action of definite groups of muscles and that the nervous impulses starting from the organs of smell, sight, hearing, and common sensibility reach defined cortical fields. All these, however, do not cover more than a third of the convoluted surface of the brain, and the remaining two-thirds are still to a large extent a *terra incognita* so far as their precise function is concerned. Is there a definite localisation of special mental qualities or moral tendencies and if so where are they situated? These are problems of extreme difficulty, but their interest and importance are difficult to exaggerate. In the solution of this problem anthropologists are bound to take an active and important part. When they have collected information as to the relative development of the various parts of the higher brain in all classes of mankind with the same thoroughness with which they have investigated the racial peculiarities of the skull the question will be within a measurable distance of solution.

TAVISTOCK HOSPITAL AND DISPENSARY.—A new wing to the Tavistock Hospital was formally opened by Mr. W. Spear, M.P., on Sept. 16th, in the presence of a large gathering. The cost of the building has been defrayed out of the invested funds of the institution, but the maintenance will receive the benefit of a bequest of £11,500 under the will of the late Mr. J. H. Gill. The new wing has been erected on land given by the Duke of Bedford and contains ten beds, a laundry, and nurses' quarters. It is to be known as the Gill wing. The Tavistock Hospital now contains 25 beds and last year 125 in-patients were admitted and 558 out-patients were treated.

A CASE PRESENTING SIGNS OF PULMONARY STENOSIS DURING LIFE, UNEXPLAINED BY THE NECROPSY, WITH SOME REMARKS ON DIAGNOSIS.

BY W. L. ASOHERSON, M.B., B.C.CANTAB., M.R.C.P.LOND.,
MEDICAL REGISTRAR, ST. GEORGE'S HOSPITAL.

A MAN, aged 28 years, was admitted into St. George's Hospital under the care of Sir Isambard Owen on June 6th, 1903, complaining of indefinite nervous symptoms. On admission he was found to be very weak and somewhat delirious. The pulse was 84, of moderate tension, with a thickened radial artery; the tongue was moist, tremulous, and thickly coated; diarrhœa was present, from seven to eight motions occurring in the 24 hours; the urine, which was of specific gravity 1010, was loaded with albumin. His mental state was not such as to permit of reliance being placed in his history, but information obtained from relatives pointed to an illness of some three weeks' duration, during which he had suddenly partially lost vision in the left eye. The movement of the chest was equal on both sides. The apex beat of the heart was found to be in the fifth left space one and a half inches outside the left mid-clavicular line; its impulse, thrusting in character, suggested hypertrophy. Præcordial dulness extended transversely from the right border of the sternum to within one inch of the anterior axillary line; vertically, it merged above into a dull area occupying the inner part of the upper two left spaces and involving the manubrium sterni. In the second left space, at a distance of about half an inch from the left sternal border, systolic pulsation was visible and on palpation a long-sustained thrill was felt. On auscultation the thrill was found to correspond with a long purring systolic murmur leading up to an extraordinarily loud and abrupt second sound. A diastolic shock was also palpable. The murmur was pretty generally conducted over the præcordium, right and left of the sternum, but diminished immediately in intensity on moving the stethoscope away from the region above mentioned. Over the dull area in the first and second left spaces intense tubular breathing was heard, entirely different in character from the harsh breathing ordinarily heard in this situation and strongly suggestive of the presence within the chest of some abnormal source of conduction of the tracheal sounds to the surface, a suggestion which was emphasised by the discovery of tubular breathing over the three upper dorsal spines, extending rather further to the left than to the right. The air entry at both bases was fair and equal on either side, nor was anything further abnormal to be detected in the lungs by physical examination. The abdomen showed some tympanites and was slightly tender.

It seemed difficult to make the various elements of the case conform to the clinical picture of any one definite morbid entity. The diarrhœa, albuminuria, and mental condition were conformable to a diagnosis of uræmia supervening in disease of the kidney but the signs in the chest were baffling. The character and position of the murmur seemed to indicate stenosis of the pulmonary artery; the area of dulness and intense tracheal breathing pointed to mediastinal tumour of some sort as a possible cause of the stenosis. Other signs of aneurysm were not sufficiently marked to be confirmative; tracheal tugging was thought to be present; the pupils were dilated, and the left was a little larger than the right; the radial pulses were equal; the voice was not abnormal. Examination of the larynx was not attempted in the condition in which the patient was. There was no definite sign of pressure in the left bronchus. The arch of the aorta could not be felt on deep palpation in the episternal notch nor was the pulsation in the neck noticeably forcible. The heart revealed no sign pointing to disease of the aorta. On the other hand, there was no special sign of growth, such as obstruction of the superior vena cava. Some abnormal condition was certainly suspected within the mediastinum but exactly what was not clear. The course of the man's illness after admission was short. His delirium increased and he became restless and noisy, sleeping but little during the night. On the next day he had an attack of what seemed to be acute œdema of the lungs. He sat up in bed panting for breath, became pallid and cyanosed, and broke into a profuse sweat; the temperature was subnormal and the pulse was feeble. Examination of the lungs revealed the presence universally of fine and medium-sized liquid râles. *He recovered, in some* sort, from the urgency of this attack, but died the same [illegible] the body was found to [illegible] ne œdema of the feet. The lungs were bulky and generally œdematous; they appeared to cover the structures of the mediastinum anteriorly to the normal extent. The infratracheal glands were pigmented and somewhat swollen; there was also slight swelling of the bronchial glands. The heart was large, weighing 23 ounces; it lay with its long axis disposed rather more horizontally than usual. The ventricles, especially the left, were much hypertrophied, and the left occupied more of the anterior surface of the heart than normal. The hypertrophy of the interventricular septum was particularly well marked and the septum bulged unduly into the lumen of the conus of the right ventricle. All the valves of the heart appeared to be normal; the sigmoid valves of the aorta and pulmonary artery were perfectly competent. There was some atheroma of the ascending aorta involving the first primary divisions. The pulmonary artery was in every respect normal. *No abnormality of any kind was found in the mediastinum.* The kidneys presented the typical appearance of chronic parenchymatous nephritis undergoing contraction. There was acute catarrh of the intestinal tract from the cardiac end of the stomach downwards.

The pulmonary region of the heart has well been called "the area of romance"; many are the systolic murmurs audible within it, more numerous still are the theories advanced for their explanation; yet, clinically, the character of such murmurs and their context often serve to distinguish them from one another. A general discussion of pulmonary systolic murmurs and their underlying conditions is far beyond the scope of this article; nevertheless, in view of the difficulties presented by the case here cited it may not be without interest to consider any group of them. We some- [illegible] murmur, long, [illegible] up, if the state of the pulmonary valves permit, to an accentuated pulmonary second sound The murmur is accompanied by a thrill; sometimes, indeed, according to Quincke, the artery can be seen pulsating in the second space. The position of maximum intensity of such *murmurs are always in the second* left space close to, and infringing on, the sternal border. Such a murmur differs entirely in character from the hæmic murmur and from the murmurs produced in aneurysms or new grow [illegible] denoting s [illegible] is easy. [illegible] may present themselves when we attempt to determine the underlying cause of the stenosis.

Briefly, stenosis of the pulmonary artery may be classified into: (I.) actual stenosis; and (II.) relative stenosis—i e., relative to actual dilatation of a distal portion. Actual stenosis may be produced from (1) intravascular and (2) extravascular causes. Intravascular causes include: (*a*) congenital stenosis of the vessel associated with the disease of the pulmonary valves; and (*b*) certain rare cases in which a thrombus in the vessel has *given rise to signs* of stenosis before death. Of extravascular causes we may mention (*a*) pressure on the artery—(i.) by aneurysms, growths, and enlarged glands, (ii.) by the ventricle of the heart itself, especially in the presence of retracted lung, and (iii.) by great pericardial effusion; (*b*) displacements of the heart such as occur in (i.) pleural effusion and (ii.) retraction or collapse of the lung; (*c*) traction on the pulmonary artery itself by adhesions or by lung disease or constriction of it by pericardial thickening; and (*d*) actual stenosis of which the causes are still obscure. Relative stenosis occurs naturally *where there is distal dilatation of the artery. Such dilatation* often occurs when the pressure in the pulmonary artery has been for a long time excessive, as in mitral stenosis, and is usually associated with chronic disease of the vessel wall.

It would seem at first that there should be no difficulty in assigning pulmonary stenosis to congenital causes when these are present, the appearance and age of the patient being distinctive, and no doubt a correct diagnosis is usually made in such cases. Sansom,[1] however, has pointed out that pulmonary stenosis of congenital origin may exist in patients of an advanced age (the oldest cited was aged 67 years) and that it is particularly in these cases that the appearance of the patient is misleading, cyanosis and the characteristic facies of morbus cæruleus being often absent. Murmurs due to congenital stenosis, however, he states, tend to increase in intensity on deep inspiration, a fact which may suffice to differentiate them from murmurs produced by some kinds of extravascular stenosis in which the converse holds. *The pulmonary second sound, too, is almost always absent* in congenital cases because of disease of the valve itself.

It may, as the above case shows, be extremely difficult to determine the particular extravascular cause giving rise to stenosis of the pulmonary artery. It is easy to prophesy after the event, and no doubt more exact scrutiny into the nature of [illegible] present case would have stayed us: [illegible] sibility of aneurysm or new growt [illegible] presternal dulness and tubular breathing were suggestive, and it is difficult to believe that the small amount of glandular enlargement revealed at the post-mortem examination could have been sufficient to give rise to these signs. In this connexion the late Dr. G. W. Balfour has written[2]: "In the whole of my experience of cardiac disease I have met with nothing more remarkable and at first sight more inexplicable than the *co-existence of a loud murmur in the pulmonary region with* [illegible]"

Collateral signs of growth or aneurysm should certainly give [illegible] indication, but it is obvious from a consideration of [illegible] ld only be [illegible]

Balfour[4] refers to six cases of pulmonary systolic murmur collected by Quincke in which the only common abnormality seemed to be either a definite retraction of the lung from the anterior mediastinum or some cause leading to insufficient expansion of it Quincke explained the production of the murmur as follows: "In these cases the force of the ventricular *systole*, which is usually expended in moving aside a cushion of overlying lung, now acts directly upon the pulmonary artery and causes stenosis of it by pressing it against the anterior wall of the chest." In justification of this hypothesis he pointed out that the murmur disappeared in deep inspiration. Balfour himself quotes three cases showing similar retraction of the lung. In two of these there was hypertrophy of the ventricles, a condition which would, no doubt, assist in bringing about stenosis of the pulmonary artery, presuming it to be possible from such a cause, and as well for the reason Quincke[5] gives—namely, that the *hypertrophy is always relatively greater* in the antero posterior diameter. Broadbent[6] calls attention to a variety of pulmonary systolic murmur occurring in adolescents "which may be loud and rough," not the result of anæmia but produced by vibrations of the conus arteriosus. As a rule the conus arteriosus is protected from the chest wall by a cushion of lung. When this is incomplete for any reason the conus arteriosus is pressed against the chest wall, producing an eddy.

Displacement of the heart, presumably by kinking of the pulmonary artery or twisting, may be a cause of stenosis and give rise to a loud *pulmonary systolic murmur*. Sir Richard Douglas Powell mentions a case of pleurisy with effusion in which, before the fluid was withdrawn, a loud pulmonary systolic murmur was audible; the murmur disappeared when the heart returned to its normal position *after paracentesis*. Fowler[7] has explained how a pulmonary systolic murmur may be caused by traction on the pulmonary artery by scar tissue in old lung disease. I may, perhaps, here be excused for calling attention to two cases that were under my care as house physician at the Brompton Hospital. Both were cases of mediastinal tumour, the nature of which was uncertain. In both, *shortly after signs of sudden* collapse of the left lung had shown themselves, a loud systolic murmur, accompanied by a thrill, developed in the pulmonary region. I was inclined at the time to credit the increasing pressure of the growth on the artery from behind as being the causation of the murmur in both cases, but on reflection it has seemed possible that they were really due to stenosis produced by the displacement of intrathoracic structures following on collapse of the lung.

---

[1] Sansom: Diagnosis of Diseases of the Heart and Aorta, p. 270 et seq.

[2] Balfour. Clinical Lectures on Diseases of the Heart and Aorta (Lecture VIII.).

[3] Loc. cit.

[4] Loc cit.

[5] [illegible] der Herztöne und Herzgeräusche, [illegible] 9. Also Edinburgh [illegible]

[7] Fowler: [illegible] p. 26.

When we consider how common are diseases which are likely to cause increased pulmonary tension and consequent dilatation of the pulmonary artery, it is curious how rarely relative pulmonary stenosis gives rise to a systolic murmur. In mitral stenosis, perhaps the most frequent cause of such dilatation, a pulmonary systolic murmur is hardly ever to be heard, a fact which Balfour tried to explain away by the statement that murmurs are often absent even though the conditions which should give rise to them are present, an explanation which seems hardly to deal finally with the subject. A more ingenious suggestion has been offered by Quincke—namely, that in most cases of mitral stenosis the dilatation of the artery is accompanied by more or less dilatation of the pulmonary ring and conus arteriosus, so that no stenosis is usually present. He quotes a case of his own in which a murmur was present; in this case the right ventricle was hypertrophied but not dilated.

There remain cases in which no satisfactory explanation of the stenosis can be advanced. Among them the above case must, I fear, for the present be grouped. No growth or aneurysm was found within the mediastinum to press upon the pulmonary artery and to cause stenosis of its lumen, nor was the left lung in any way retracted. Two facts revealed by the necropsy are perhaps worthy of mention. The first relates to the position of the heart. It will be remembered that the antero-posterior axis was more transversely placed than normally. In such a position the shoulder, so to speak, of the heart would occupy a higher position in the chest and also be rotated nearer to the pulmonary artery. The force of ventricular action would be then at a better advantage to compress it, any hypertrophy tending to enhance the probability of such a result. The altered position of this portion of the heart might also be supposed accountable in some measure for the abnormal dulness in the first and second spaces. The second point has relation to the undue hypertrophy of the septum. The septum is described as bulging into the cavity of the conus arteriosus. Might not the presence of such a bulging be a cause of stenosis, if not of the artery itself, at any rate of the ring and conus behind it? Which of these two facts, or whether either of them, played any part in producing the murmur heard during life it is impossible to determine on the evidence of a single case.

Two interesting conditions, not relating to the pulmonary artery, have been described in the literature which give rise to murmurs closely simulating the murmurs of pulmonary stenosis. It appears according to Balfour[8] that in certain cases of aortic aneurysm where the left sinus of Valsalva is affected, the pouch lies behind the sternum and to a certain extent in the second left space. In these cases a loud pulmonary systolic murmur is heard, accompanied by a thrill and followed by an accentuated second sound. He says that the condition is only distinguishable from pulmonary stenosis by the fact that any pulsation occurring is greater in intensity than the apex beat of the heart and that collateral symptoms of aneurysm, such as pain, &c., are present. We should also expect the murmur to be well conducted into the vessels of the neck, which is of course not the case in pulmonary stenosis. Sansom[9] also mentions a rare but interesting condition—namely, patent ductus arteriosus. In the cases he observed a loud crescendo systolic murmur was heard in the second left space, followed by an accentuated second sound. The murmur, he remarks, was particularly well heard in the vessels of the neck and over the descending aorta behind. The condition was compatible with almost perfect health. Both of these conditions must be rare—they have certainly never come within the range of my limited experience. Two other features relating to the physical signs observed in the above case are as extraordinary and perhaps as inexplicable as the systolic murmur. The existence of a so greatly accentuated pulmonary second sound, without any apparent cause for high tension in the pulmonary artery, and the intense tracheal breathing which was audible over the upper part of the sternum and the back, and for the presence of which the necropsy revealed no cause.

In conclusion, my thanks are due to Sir Isambard Owen for permitting me to make use of the case in this article.

St. George's Hospital, S.W.

---

[8] Loc. cit.

[9] Loc. cit.

A NOTE ON TONSILLAR ENLARGEMENTS AND THEIR TREATMENT.

By LAWRIE H. McGAVIN, F.R.C.S. Eng.,

CLINICAL ASSISTANT IN THE THROAT DEPARTMENT OF GUY'S HOSPITAL.

AMONG the many minor ailments to which the body is subject there are some it may be said the frequency of the occurrence of which seems to have bred almost insensibly a kind of contempt which has sapped most insidiously the habit of considering systematically and carefully the *pros* and *cons* of their treatment. The old adage of "familiarity breeding contempt" is true in surgical as well in other matters, and perhaps in no branch of surgery is this more often the case than in the treatment of the various enlargements to which the tonsils are liable. The reason of this is not far to seek. In a crowded out-patient room when time is limited and where many children, not always the cleanest or in the best of tempers, have to be examined, the constant reiteration of the same variety of case becomes wearisome and in spite of himself the surgeon is prone to lapse into haste and thus the tonsils are condemned to a cursory examination and if found enlarged short shrift is their portion and they are forthwith removed.

Now every tonsil which is enlarged, it is hardly necessary to say, does not require ablation, and starting with the premiss that every part of the body has its own special object and purpose we must admit that until we are able better to understand the uses and functions of these somewhat peculiar organs we should be more sound in our surgery were we to incline more often to the side of conservation than to that of extirpation. The argument which has been supported by many authorities that patients get along perfectly well without their tonsils seems to me to be a poor attempt to justify a lazy method of treatment and but little worthy of a scientific profession. On many occasions I have witnessed the removal of tonsils which might well have been saved by palliative measures properly applied, or at least by less heroic means than complete extirpation. Again, on many occasions I have seen both organs submitted to the guillotine when one would have sufficed and as frequently I have seen both removed for conditions in which they were but the innocent "accessories after the fact," the primary cause of the trouble being allowed to escape notice. So long as the fact is ignored that these organs are of some use in the economy and that their diseases are amenable to treatment, so long will their existence be threatened with the guillotine, the bistoury, and the scissors, and so long will their indiscriminate removal stand as a reproach to surgery and provide a gold mine to the unscrupulous. That much may be done for enlargement of the tonsils by judicious palliative treatment is a fact which is fully recognised by most surgeons, but by some the condition has been regarded as one of little promise and hardly worth the trouble entailed in its performance.

What then are the uses of the tonsil? First, and chiefly, they must be looked upon as the scavengers of the oro-pharynx, and in support of this the following points may be mentioned: 1. Their position at the back of the mouth, where the movements of the tongue are least efficacious in cleansing the buccal cavity, points to the necessity of their presence there. 2. Placed between the two constrictors of the oro-pharyngeal space they must be acted upon by them in two ways, first, by being carried by them towards the middle line of the space, and, secondly, by being forcibly squeezed between them during their contraction. Thus the bolus of food in its passage to the pharynx is compressed between the faucial and lingual tonsils at the oro-pharyngeal ring and is thus probably denuded to a great extent of surface bacteria, the compression of the tonsil at the same time possibly serving to cause the exudation of a protective film of lymph by which any organisms may be rendered innocuous during the subsequent passage over the posterior surface of the arytenoid cartilages. 3. The fact that the tonsil is a lymphatic gland placed in a septic cavity and that it is in direct communication with that cavity, suggests that its duty is that of rapid phagocytosis without the mediation of lymphatic vessels. 4. The presence of so much lymphatic tissue, of which the faucial tonsils form only a portion, in the oro-pharynx is evidence of the necessity for protection against bacterial invasion in this situation.

Again, the fact that Störk and others have demonstrated the presence of the tubercle bacillus in the tonsils of healthy children and that Park has similarly found streptococci and staphylococci, and other observers the diplococcus of pneumonia, is strong evidence in support of the belief that phagocytosis is one, if not the chief, object of these glands. For it is reasonable to suppose that had these organisms succeeded in passing the tonsils in place of lodging in them, they might have constituted a toxic dose when brought into some *locus minoris resistentiæ* in some other part of the body. Absorption appears to be amongst the duties of the tonsils, although to what purpose this takes place is not clear; for Goodall and Hendelsohn have demonstrated the absorption of substances placed on the surface epithelium of the tonsil. Possibly secretion, as suggested above, and other less obvious functions are included in the rôle of these organs but of these we are as yet in the dark.

That the tonsils undergo atrophy in later life is no argument against their supposed protective function, for when the marked predisposition to the exanthemata, diphtheria, and other infectious states in young children is considered, as opposed to the comparative immunity from such in later years, it is in the natural order of events that, their presence being no longer required, they should to some extent disappear.

Granted then that the tonsils have at least one known duty to perform, and possibly others unknown, their condition is, I submit, deserving of careful consideration before their removal is determined on; otherwise their surgery is debased to the level of unscientific and meddlesome interference. Of the many causes of tonsillar enlargement there are one or two to which attention must be drawn, as being those in which the mistakes I have mentioned are most commonly made, and in which it is desirable to indicate some definite line of treatment.

1. *Simple enlargement or hypertrophy of the tonsil.*—This condition, which has received but little notice in the standard works, is by no means of infrequent occurrence. From time to time one sees little patients whose sole trouble consists in slight obstruction to respiration, especially at night, when they become a nuisance to their parents on account of their snoring. They present on examination tonsils which are of huge proportions, smooth, normal in colour, show no distension of their crypts, no exudation of lacunar secretion, or any rugosity pointing to the presence of chronic fibroid change. The enlargement of such tonsils probably does not depend on any chronic irritation but is the outcome of some tendency to a general hypertrophy of the parenchyma of the gland, the various constituent parts of the organ maintaining their respective proportions to each other. In short, the enlargement is a true hypertrophy and not a hyperplasia. It is perfectly obvious that such tonsils cannot by any means be reduced in size except by partial removal; and indeed, in view of the unsatisfactory nature of such an operation it is better to remove the entire gland, for although little harm may at first accrue to patients so afflicted, yet in time such tonsils produce the common results of impeded respiration; and it must always be borne in mind that in the event of a sudden and acute attack of inflammation of the tonsils and pharynx such large organs as are above referred to become a real menace to life, especially where medical aid is not immediately forthcoming.

I would here strongly protest against the indiscriminate use of the term "hypertrophy"; it has been loosely used to describe all varieties of enlargement of the tonsil, even in works professing technical knowledge. Clearly those enlargements depending on inflammatory processes have no right to a term the etymology of which signifies "increase in size of a *healthy* organ due to increase of exercise or nutrition."

2 *Enlargement due to continued irritation.*—Here one may describe two classes of tonsil—viz., that which is in the early stage of inflammation and that which is affected by the changes produced by chronic inflammation—that is to say, not a *hypertrophied* but a *hyperplastic* tonsil. Now of the causes producing such states the most common is undoubtedly nasal insufficiency or naso-pharyngeal obstruction, from wh [illegible] young the usual cause of mo [illegible] of post-nasal adenoids, while [illegible] or hypertrophy, septal deflections, myxomata, and other abnormal conditions are mainly responsible. The constant passage of bacteria and dust-laden air through the oro-pharynx instead of through the nasal cavities is incompatible with the healthy state of the faucial and [illegible] ult is enlargement of [illegible] and folliculitis. If, [illegible] nsils be considered it will be seen at once that those of the first variety, those in which actual fibroid change has not yet commenced, those which are still soft and smooth, but possibly red from subacute inflammation, are only suffering from a temporary perversion from their normal state; the second, on the other hand, are permanently and radically altered histologically. Remove the cause of the trouble in the first variety and in the vast majority of cases the tonsils will return to their original healthy condition; in the second ablation is the only treatment to be considered and should be forthwith carried out.

The above points, although by no means new, are very important, for one repeatedly sees patients condemned to lose both tonsils when a careful examination and a little forethought would have removed the cause of the enlargement and obviated the necessity for a severer operation, or what is rather a needless mutil [illegible] that every enlarged to [illegible] calls for removal; my [illegible] tion of young children [illegible] first removed, and certainly in doubtful cases it is well to await the result of the primary operation before resorting to ablation. The only exception I would make to this rule is when there is obvious enlargement of the cervical lymphatic glands. It is well known that when the tonsils are inflamed or diseased they may furnish the means of entrance to the tubercle bacillus; Kocher has shown that a septic osteomyelitis may result from an infection originating in the tonsil; therefore when with nasal obstruction and enlargement of the tonsils cervical glandular enlargement is also present, no matter how innocent the tonsil itself may appear, it should most certainly be removed.

3. *Enlargement accompanied by lacunar inflammation.*—The purpose of the tonsillar crypts or lacunæ appears to be uncertain, but they would seem, as suggested above, to be designed (like the valvulæ conniventes of the intestine) to increase the superficial area of the tonsillar epithelium for absorptive and secretive purposes, invagination replacing external reduplication, with the object of economising space in the oro-pharynx. It is, moreover, possible that these pits serve for the better entanglement of bacteria and their more effective removal by phagocytosis. That the crypts are not an unmixed blessing is shown by the readiness with which they become the seat of chronic inflammation or the receptacles of small foreign bodies, such as fish-bones, tooth-brush bristles, &c. Presumably, however, they have their uses in the economy, and are therefore to be cared for and considered as well as other more important structures. Enlargement of the tonsil resulting from lacunar or cryptic disease presents itself in varying stages according to the degree of involvement and chronicity to which such disease has attained. It is most commonly seen in young adults, and therefore is more amenable to conservative treatment than when met with in young children, and when the condition of the patients is considered it is seen to be one of great discomfort, for the constant hawking, the obstruction to respiration, recurrent attacks of angina, the spitting up of foul epithelial and bacterial plugs, and last, but not least, the sickening odour of the breath, are all factors in the case which call for energetic treatment.

But here, again, it has been too commonly the rule to suppose that such a state of the tonsil can only be met by its complete eradication. Equally one may say that conservative treatment has been applied to cases for which it was wholly unsuitable. A systematic consideration of each individual case will well repay the time and trouble expended upon it, and in this connexion a factor of great importance and one which has been too often overlooked is the presence of the supratonsillar fossa and its condition in lacunar disease. This structure which, as Watson Williams has pointed out, may extend downwards between the jaw and the superior constrictor of the pharynx and upwards into the soft palate, and which I have myself seen extending backwards for a distance of an inch behind the posterior pillar of the fauces, has a very important bearing on the treatment of lacunar disease; for its interior being invisible it is liable to be overlooked, and yet in this situation there may exist a condition of lacunar inflammation which is incompatible with any effort of conservative surgery although the inner aspect of the tonsil may be comparatively free from trouble. Here may be accumulating a horribly offensive collection of lacunar secretion swarming with bacteria which cannot be evacuated without removal of the tonsil.

The method of greatest use in this disease from a conservative point of view is that of cauterisation, gargles, douches, and local applications being, I believe, absolutely useless except as subsidiary methods, for it is easy to see that since the trouble lies in the lacunæ themselves, many of which are as much as half an inch in depth, and many of which are filled with foul smelling inspissated secretion, none of these applications ever reach the lacunar epithelium where lie the *fons et origo mali*, and the treatment thus resolves itself into a senseless waste of good drugs.

FIG. 1.

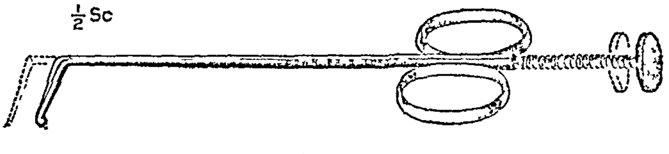
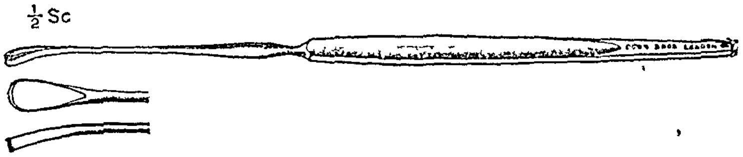


FIG. 2.



I would then briefly indicate the conditions which call for total ablation of the tonsils, and those in which conservative treatment may reasonably be expected to succeed. Tonsillectomy is indicated in lacunar disease in the following conditions: 1. Where the whole tonsil is extensively diseased, for where nearly every crypt is involved the subsequent fibrosis induced by such extensive use of the cautery as would be necessary is liable to leave the tonsil disorganised and often in a chronically painful condition. 2. When the crypts involved, although few in number, are situated at the upper part of the tonsil and open upon the mouth of a deep supratonsillar fossa. It is in such cases that cauterisation is useless, many of the crypts being out of reach and the fossa acting as a trap for secretion and food particles which rapidly decompose. 3 Where the crypts, although few are involved, occur upon a hard, anæmic, and rugose tonsil, and contain lacunar plugs which are cretaceous and extremely foul. Such tonsils are the result of old-standing hyperplasia and are quite unsuited to treatment by the cautery. 4. When the disease occurs in young children who will rarely permit of any prolonged manipulation in the mouth. 5. When the condition is accompanied by cervical glandular enlargement. 6. Where cauterisation has already been tried and has failed. On the other hand, dilatation of the orifices, evacuation of the contents, and cauterisation of the crypts is especially indicated—(1) in cases where the diseased crypts are neither numerous nor large; (2) where the upper part of the tonsil is healthy and the supratonsillar fossa is shallow; and (3) where the disease occurs in young adults and has not been of long standing.

In treating lacunar disease by the cautery it must be remembered that complete evacuation of the crypts is essential, and for this purpose the instrument depicted in Fig. 1 will be found of great use, its object being to dilate the lacunar orifices which are often much narrower than the cavities themselves. An application of 5 per cent solution of cocaine is used and with the aid of the scoop shown in Fig. 2 the contents of the crypt are cleared out. The cavity is then wiped out with a small pledget of cotton-wool, anæsthetised with a 20 per cent. solution of cocaine, and thoroughly cauterised with an electric cautery point at a dull red heat. A point of importance is not to attempt too much at a sitting, otherwise the subsequent inflammation is apt to be excessive and may unduly disorganise the glandular substance. My own practice is to deal with not more than two or three crypts at a sitting and to choose those which are at some distance apart. These are allowed to heal completely before the treatment is resumed. The operation is painless and the reaction is but slight if the above points are attended to, and if the cases have been discreetly chosen the result will be found to be perfectly satisfactory; the tonsils are saved and the disease is cured.

As regards the operation of tonsillectomy, I believe most surgeons are in favour of removal by means of the guillotine as being the simplest and least dangerous method; I would venture to suggest, however, that up to the present time a really satisfactory instrument has not been designed. Mackenzie's guillotine, which is the most generally used in this country, seems to me to have several disadvantages, which it shares in company with many less well-known instruments. First, it is much too bulky; secondly, it is straight in the shaft in place of being curved on the edge so as to conform to the shape of the pharynx—consequently tonsils markedly dependent into the pharynx are only caught with difficulty; and thirdly (and this is the most important point), the long axis of the fenestration lies in the short axis of the tonsil, so that in cases of moderately large tonsils only a portion may be removed unless the operator is practised in passing the fenestration round the lower end of the gland first, a matter of no small difficulty to the unskilled. In this connexion I would enter an energetic protest against a supposition which still seems to be cherished in some quarters—viz, that the removal of part of the tonsil will bring about the atrophy of the whole Such an idea is, I feel sure, contrary to the experience of most surgeons and is responsible for many so-called recurrences of tonsillar enlargement and much discredit to the profession.

As an advocate of the treatment of chronic follicular tonsillitis of limited extent by the electric cautery I have been led to devise the above-depicted crypt dilator and curette for the performance of this operation. The former will be found to differ considerably in its mechanism and character from most of the better-known instruments. It is finer in the point, lighter in the hand, more easily adapted to either side, and better suited to the gradual and forcible dilatation of the tonsillar crypts. The curette is a double-edged one, the loop being set at a slight angle; by this means crypts lying far back in the tonsil are easily reached and evacuated. The instruments have been made to my order by Messrs. Down Bros. and have proved in every way satisfactory.

Mansfield-street, W.

ON SOME UNCOMMON FORMS OF NEURITIS OF THE UPPER LIMB WITH AN UNUSUAL ETIOLOGY.

BY W. B. WARRINGTON, M D., M.R C P. LOND.,
PHYSICIAN TO THE DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL, AND DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY.

OF the forms of neuritis which I describe some are of unusual distribution and in all the etiology is obscure. It is well known that the palsies of the brachial plexus, described by Duchenne and Erb, in which the site of the disease is in the fifth and sixth nerves, and that described by Déjerine and Mlle. Klumpke, in which the inferior part, the eighth cervical and first dorsal nerves is affected, may be of non-traumatic origin. The onset may be insidious or abrupt: in some the paralysis has occurred during convalescence from an acute infection; in others the sudden onset has suggested a vascular lesion. Farquhar Buzzard [1] has recently described a series of cases in which one nerve only of the brachial plexus was affected, and a similar case has been recorded by Edwin Bramwell.[2] Buzzard is inclined to believe that localised vascular changes may occur in the spinal nerves, the cords of the brachial plexus, and the nerves of the extremities. I am inclined to think that in two of my cases (Nos. 2 and 3) the cause, in part at least, was of a vascular nature. The cases are (1) complete monoplegia; (2) multiple localised neuritis; (3) a partial Erb's paralysis; (4) two cases of ulnar neuritis; and (5) two forms of professional palsy.

CASE 1. *An acute toxic condition followed by complete monoplegia with wasting of muscles; pain, but no anæsthesia; recovery.*—The patient, a healthy-looking sailor, aged 21 years, was admitted on Nov. 6th, 1902, complaining of loss of power in the right upper limb. The history is that about two months previously when in Mobile, Alabama, and in otherwise good health, he was suddenly seized with pains in the shoulder, arm, forearm, and knee-joint of the right side, and the next morning he found that he had lost power in the right upper limb so that he was unable to wash himself. [illegible] in the right knee-joint [illegible]kle and the wrist. Soon [illegible] began, and after being [illegible] or New York, still with marked weakness of the right upper limb and swelling of the knee-joint. At New York he suffered from malaria and went into hospital again and towards the end of October was sent to Liverpool by the German Consul. He was a healthy-looking man with no disease of the internal organs. His temperature was normal. There were seen to be marked wasting of the right upper extremity and considerable loss of power. Thus in the hand the thenar, hypothenar, and interossei muscles were markedly wasted and to an equal extent. The loss of power corresponded to the wasting, and the movements of the thumb and fingers due to the intrinsic muscles of the hand were feebly performed. There was no claw hand and the grasp equalled 95 with the dynamometer compared with 110 on the left side. At the wrist-joint the movements of lateral flexion, extension, and flexion were similarly weak and the forearm was much thinner than its fellow on the opposite side. The triceps, flexors of the elbow, and supinator longus were also wasted and weak. Of the muscles of the shoulder girdle, the deltoid was the most affected, being considerably atrophied; the patient could only abduct the arm with great feebleness. The supraspinatus and infraspinatus muscles were atrophied and external rotation was very feeble. The position of the scapula at rest seemed normal and on attempting to approximate the inner borders of the shoulder-blades the movements were symmetrical. I could not detect any weakness in the trapezius, rhomboid, or levator anguli. The serratus magnus, latissimus dorsi, and pectoralis, although acting fairly strongly and with no perceptible atrophy, were undoubtedly weaker than on the left side. There was no loss of sensation of any kind nor did the patient complain of paræsthesiæ such as numbness or tingling. Pain, however, was still a factor of the patient's illness; this was present on any movement of the shoulder-joint and on pressure over the site of the nerves at the root of the neck. Although pressure of the paralysed muscles did not produce pain, there was a tender spot on the deltoid muscle above its insertion into the humerus. There were no oculo-pupillary changes and no fibrillary twitchings of the muscles. With regard to the electrical reactions I was surprised to find these practically normal; to faradisation all the wasted muscles reacted nearly as briskly as on the left side and the constant current gave the ordinary polar reaction. In the right lower limb there was found to be a considerable amount of fluid in the knee-joint associated with wasting of the extensor muscles which gave normal electrical reactions. The knee-jerks were normal; there was no ankle clonus and the plantar response was of the flexor type. The [illegible] the upper limb were also no[illegible] by massage and faradism a[illegible] The deltoid was the last t[illegible] was visible there when absent in the other muscles. The synovitis was treated with success by the application of Scott's dressing. On Jan. 14th the patient was discharged with slight disabilities only.

---

[1] Brain, Summer number, 1902.
[2] Review of Neurology and Psychiatry, April, 1903.

In considering this case the condition in the lower limb may, I think, be admitted as due to the chronic synovitis of the knee-joint. We have thus to deal with a monoplegia of the upper extremity following some acute toxic condition probably allied to rheumatism, for though the history of the patient is not sufficient to establish that diagnosis it is not inconsistent with it. The great difficulty is the differentiation between a poliomyelitis anterior acuta and a neuritis. This is especially important in the early stage of these diseases, since the prognosis differs, a complete recovery after disease of the cord being rare. In my patient when first seen it was obvious that all the muscles were recovering power and this is in favour of a lesion in the nerves. The maintained electrical irritability and presence of the periosteal and tendon reflexes are difficult of explanation and can only indicate that the lesion though wide in distribution was slight in degree. The absence of any loss of sensation, though characteristic of poliomyelitis, is often seen in peripheral affections. More important are the severity and duration of pain in the nerve trunks. When pain is present in poliomyelitis it is due either to a coincident neuritis or a meningitis. An interesting discussion of this question of diagnosis is given by E. Brissaud and Londe[3] in connexion [illegible] ably against poliomyelitis. Monoplegias from peripheral neuritis are rare. Déjerine[5] says he has met with two clear examples. He writes: "De monoplégie brachiale avec atrophie musculaire considérable, douleurs spontanées, hyperesthésie excessive à la pression des troncs nerveux et des masses musculaires, intégrité de la sensibilité objective, et dans lesquels la guérison complète, totale, au bout d'un temps plus ou moins long, sept et dix mois dans mes cases, est venue prouver que les nerfs périphériques étaient seuls en cause." In the above case the character of the pain, its persistence for several months, and the complete recovery of the upper limb afford, I think, a strong presumption that the lesion was not in the spinal cord, but rather an inflammatory condition affecting the nerves of the brachial plexus.

CASE 2. *Localised multiple neuritis: left upper limb, wasting of muscles of the hand, palsy of the extensors of the fingers and of the biceps, anæsthesia of the ulnar border of the forearm; right upper limb, wasting of triceps with analgesic area; loss of knee-jerks; partial recovery; under observation three years. (The patient showed signs of vascular degeneration.)*—The patient was a man, aged 56 years, a boiler-maker by occupation, and was first seen on Sept. 30th, 1900. His history was that six weeks previously he was attacked with severe pain, bad enough to keep him awake at night. The pain was localised chiefly to the left shoulder but passed down the arm; it followed no particular distribution and never reached as far as the fingers. He complained of loss of power in his left arm and fingers, especially in his inability to grasp his hammer with sufficient force, which he had been accustomed to steady with the left hand whilst the right hand was used to apply the force. He did not now complain of any numbness or sensations of pins and needles and the pain was much less severe. On [illegible] heavily-buil[illegible]e. The radial pulse was [illegible]ery was distinctly thickened. There was a well-marked systolic bruit over the base of the heart; the apex was slightly displaced outwards and downwards. The left pupil was slightly smaller than the right, but there was no narrowing of the palpebral fissure. There was found to be marked wasting in various groups of muscles in both upper extremities and also objective disturbance of sensation. On the left side there was marked wasting of the small muscles of the hand, especially in the first dorsal interosseous, which did not respond to faradism and barely to the constant current. The other interossei also were wasted and had lost their faradic irritability; the [illegible] considerably wasted but gave [illegible] the abductor and opponens c[illegible] developed, but the inner part of the thenar eminence was distinctly flabby and showed a diminished electrical irritability. The wrist was dropped but could be raised slightly against resistance. The extensors of the fingers were weaker than the extensors proper of the wrist. The grasp was feeble, but the flexors of the wrist were not notably deficient in power. At the elbow-joint flexion was distinctly enfeebled, but the triceps, supinator longus, and shoulder girdle muscles were strong. On testing the sensibility a well-defined area was found on the inner border of the forearm on both the anterior and the posterior aspects, passing along the palm and dorsum of the hand and involving the little and part of the ring finger, in which sensation was markedly defective. In this region moderate pin pricks were not felt and there was distinct deficiency in recognising heat, as tested by a hot pin head, or cold, as tested by evaporating drops of ether. Touch, as tested by the blunt head of a pin, was less affected than the other forms of sensation; he knew he was being touched but there was obvious impairment as compared with the other side. On the right side the triceps were distinctly atrophied and gave a feeble reaction to faradism and an altered polar contraction with the constant current; it was thought also that the flexors of the elbow were weak, but there were here no atrophy and no changed electrical irritability. No other muscles were at all affected. A small oval area on the outside of the arm, extending from below the site of insertion of the deltoid, was found to be distinctly analgesic. In the lower extremity no defect of movement or sensation was observed, but the patient complained of occasional pains shooting from the sacrum down the posterior surface of the limbs and of some numbness. The knee-jerks and ankle-jerks were absent; the plantar response was of the flexor type. This patient has been under continued observation, the last note of his condition being taken on Sept. 6th. He has been taking strychnine from time to time and his condition is now considerably improved, the grasp is now nearly as strong as that on the right side and the wasting is not so pronounced, the disturbance of sensation has disappeared, but the pain in the lower extremity still troubles the patient who has, however, obtained considerable relief from the use of a menthol cone. The present condition will be understood from the following note on the electrical reactions: "On the left side the hypothenar muscles and interossei barely respond at all to faradism and the reaction of the thenar muscles is also diminished. The extensors of the wrist, thumb, and little finger and lateral flexors respond naturally, but no response can be obtained from the extensors of the second and third fingers; the other muscles react well to galvanism, the affected muscles act feebly, but the polar reaction always gives K.C C. > A.C.C. On the right side the atrophy of the triceps is very well marked, faradism feeble, galvanism feeble K.C.C. > A.C.C.; no other muscles affected." The knee-jerks are still absent.

---

[3] Revue Neurologique, 1902, p. 1018.

[4] Neurologisches Centralblatt, 1897.

[5] Sémiologie du Système Nerveux, p. 520.

The case seems to be one of a multiple localised neuritis brought about partly by the occupation of the patient, aided by defective nutrition from disease of the vessels. Atheromatous neuritis is well recognised and is characterised, according to Gowers, by great irregularity of distribution, well illustrated in the above case. Some literature on the subject is given in Ross and Bury's well-known work. The above case is, however, hardly comparable with the form of neuritis that arises in old people with advanced senile vascular degeneration and its distribution depends, I think, in part, at least, on the nature of the patient's occupation, which is suggested by the wasting of the small muscles of the left hand, similar to that seen in those whose work involves the firmly grasping of objects in the palm, and, on the other hand, in the atrophy of the triceps of the right side, which would be largely used in holding the hammer with the arm flexed. Some forms of professional neuritis are, however, probably due to a peripheral affection of the terminal endings of nerves, whilst here the distribution of the anæsthesia on the inner side of the forearm, with the wasting of the small muscles and possibly also the diminished size of the pupil, suggest a lesion of the inferior part of the plexus of the Klumpke type. On the right side the wasting of the triceps and the area of analgesia over the distribution of the posterior division of the circumflex nerve point to a peripheral affection. On the left again branches of the musculo-spiral and musculo-cutaneous are affected and the condition of the lower limbs is also important, hence I consider the case is best designated as a multiple localised neuritis. Remak[6] has described a similar kind of affection occurring acutely from the influence of fatigue and cold; in his case the biceps was alone affected on one side and the deltoid and suprascapular and infrascapular on the other side. Remak describes this case as one of acute multiple localised neuritis and considers that the lesion was partly in the plexus, a partial Erb's palsy, and partly a peripheral affection.

CASE 3. *Prophylactic injection of diphtheria antitoxin, followed in a week by acute universal urticaria and swelling of the right shoulder-joint; palsy of the deltoid and infraspinatus, recovery in four months.*—Early in October, 1902, a medical practitioner, owing to the presence of a suspicious case of sore throat, caused himself and the other members of his household to be injected with the diphtheria antitoxin. This was followed in the case of one of the maids by the appearance of an erythema and some swelling of the knee-joint. Nothing unsatisfactory occurred in any other person. At the end of a week the medical practitioner enjoyed a day on the links. The same evening he was attacked by a violent universal urticaria and suffered intense pain. This subsided in the course of 48 hours and left the patient with a swollen right shoulder-joint and a powerless arm; the swelling rapidly subsided and he was seen by me a few days after the onset. It was found that manipulation of the shoulder or any pressure about the deltoid or scapular muscles gave rise to intense pain. There were also complete loss of power in the deltoid and infraspinatus muscles and a weakness in the biceps and supinator longus. The deltoid and infraspinatus were flabby and toneless and rapidly underwent marked wasting. These two muscles gave the complete reaction of degeneration. Power of abduction or external rotation of the shoulder was completely abolished; but the pectorals did not seem to have been affected. Under treatment by douching and a powder of half a grain of codeia, two grains of salicylate of quinine, and eight grains of phenacetin, ordered by Dr. Armstrong of Buxton, the pain gradually subsided and I was able to examine the condition of the muscles more closely. About a month after the onset it was found that the patient was unable to abduct the arm at all but could raise it to a horizontal position in the sagittal plane. The manner of doing this was as follows The body was bent towards the affected side; in this way gravity produced an external rotation of the humerus, so that the palm looked forward; in this position the pectoralis major, coraco-brachialis, and anterior fibres of the deltoid were placed in the most favoured position for raising the arm. If when thus raised to the horizontal level the arm was rotated inwards so that the dorsum of the hand looked upwards it could no longer be supported and fell at once to the side; the action of the anterior fibres of the deltoid is usually considered necessary for this movement. I could, however, detect no action of that muscle nor did its anterior fibres give any reaction to faradism. The infraspinatus muscle showed no sign of recovery and there was still some weakness in the biceps and supinator longus. I regret that the electrical excitability of these two muscles was not noted or the condition at Erb's point. No objective disorder of sensation could be discovered, but considerable pain could still be easily elicited by pressure about the shoulder-joint. The patient was now treated by daily applications of massage and galvanism and small doses of strychnine given subcutaneously. Recovery was very slow and it was not until about the middle of December that any power returned in the deltoid or infraspinatus muscles and the presence of faradic excitability was not noted before Jan. 28th. Since then he has progressed to a practically complete recovery, though there is yet a decided hollow below the scapular spine.

The combination of total paralysis of the deltoid and infraspinatus with weakness of the biceps and supinator seems to localise the neuritis as being in the fifth and sixth nerves of the plexus, in fact, a partial Erb's paralysis. The history of the onset is curious; though diphtheria antitoxin frequently gives rise to erythemata and urticaria, so far as I am aware the severity of such skin lesions never approaches that from which my patient suffered; also the interval of a week is unusual for such manifestations, but the occurrence of similar symptoms of less intensity in another person who was inoculated with the same serum cannot be ignored. A day's golf can hardly be responsible and there is no evidence of errors of diet. I am inclined to think that the serum was not without influence in producing the condition and that the nerve lesion was also due to the same kind of acute inflammatory disturbance witnessed on the skin.

CASE 4. *Ulnar neuritis with wasting of the muscles of the hand and anæsthesia; no obvious cause; partial improvement.*—The patient, a woman, aged 27 years, was first seen early in April, 1903. She was healthy-looking and was by occupation a machinist but did not use her hands much in her work. She complained of wasting in the muscles of the right hand which she had noticed for about five months previously. It was found that the hypothenar eminence, the interossei, and the inner part of the thenar eminence were distinctly wasted. The hand had a characteristic position, the little and ring finger showing the *main en griffe* in a fairly marked degree, this condition in the two outer fingers being much less obvious. The abductor indicis which was most affected did not react to faradism and gave A.C.C. > K.C.C. The other interossei gave also no reaction to faradism but the normal polar reaction to galvanism. The hypothenar muscles and the muscles on the inner side of the thenar eminence reacted feebly to faradism. The outer muscles of the thenar eminence, on the contrary, contracted strongly on electrical stimulation. In accordance with this abduction of the thumb in a plane at right angles to that of the palm was carried out with fair strength, whilst the movement of adduction was weak. The lateral movements of the fingers were practically absent and the grasp was feeble. No other weakness could be detected, the movements of the wrist were normal, and all the muscles of the forearm, including the flexor carpi ulnaris, reacted to faradism. There was a very distinct area of disturbed sensation extending from the distal extremity of the ulnar bone on to the palm and dorsu[illegible] of th[illegible] lute, [illegible] a pin [illegible] and the ether spray could be applied without any recognition. On the palm of the hand and over the front and back of the ring finger the anæsthesia was only relative. The patient complained of a numb feeling along the border of the little finger. The lower extremity was natural in all respects and the pupils were equal and reacted to light. The patient has been under constant observation since she was first seen. [illegible] the disorder of sensation [illegible] remains much [illegible]ng more fleshy, still give no reaction to faradism.

---

[6] Neurologisches Centralblatt, 1896.

The interest in the case lies in the absence of any known etiological factor. The work in which the patient was engaged does not appear to have been of the kind capable of causing a professional neuritis. The only suggestion of a cause is to be found in the fact that six weeks before the onset of symptoms the patient had been confined, but the puerperium was perfectly normal and not associated with debility. Sir William Gowers relates a case of a woman who suffered from neuritis of the ulnar nerve twice after childbirth, but in this case there was a long exhausting labour. I regard the prognosis as bad and expect the atrophy will remain, as in the next case to be related.

CASE 5 *Wasting limited to the muscles of the hand supplied by the ulnar nerve; no known cause; no anæsthesia; stationary condition for three years.*—A young man, aged 18 years, consulted me on May 13th, 1901, on account of wasting in the muscles of the right hand. He had noticed the condition for about two years but could give no reason for it. The only fact elicited was that the patient was an unusually good pianist and for some time back had been practising octave scales. The condition found was practically identical with that present in the preceding case with the exception that no disturbance of sensation could be found nor was there any numbness or tingling. The atrophy involved the hypothenar muscles and the interossei and the inner part of the thenar eminence, and in these muscles faradic irritability was abolished and faint contractions only were obtained from the constant current. The position of the fingers was the same as in Case 4, the two inner fingers being more paralysed than the outer ones. No other abnormality was detected, the reflexes and power in the lower extremity being normal. He was carefully treated by applications of the galvanic current, but his condition has remained stationary, and when seen by me last on June 27th of this year no alteration from his original state was discernible.

In both this and the preceding case the atrophy was sharply limited to the muscles of the hand supplied by the ulnar nerve and no weakness could be detected in the flexors of the fingers. This localisation of paralysis and the distribution of the anæsthesia in Case 4 exclude a uniradicular lesion, as described by F. Buzzard, and point to a neuritis affecting the ulnar nerve below the place where it becomes superficial at the inner side of the wrist. They resemble a group of cases described by Lewis Jones,[7] all of which occurred in young people; in some one hand was alone affected and in others both hands. There was no obvious cause. In these cases the small muscles supplied by both the median and the ulnar nerves were affected and mention is not made of any anæsthesia. In 1901 I saw a girl, aged 19 years, with wasting in all the small muscles of both hands and no associated symptoms pointing to disease of the spinal cord. Lewis Jones regarded his cases as examples of a form of neuritis and since the six cases described by him with the three now related [illegible] 20 years of [illegible]r.

C[illegible] *[illegible]ght hand in a provision dealer's assistant; normal electrical reactions; no anæsthesia.*—This case and the next are inserted as examples of a true "professional" palsy. The patient, who was engaged in a large provision dealer's shop, stated that part of his duty consisted in cutting bacon [illegible] used for this purpose a [illegible]ndle, which pressed into th[illegible] that often in one evening he cut as many as a hundred slices. He began to experience pain, then weakness in his work, and when seen by me there was obvious, though not marked, wasting in the thena[illegible] the dorsal interosse[illegible] thenar eminence, a[illegible] pressure was a fac[illegible] muscles reacted wel[illegible] left side, and there was no loss of sensation. I considered that if the patient could arrange to forego this part of his work the prognosis was good.

CASE 7. *Extreme atrophy of the muscles of the arm in a boiler-maker; integrity of the shoulder girdle and muscles of the forearm and the hand.*—A man, aged 27 years, a boiler-maker, noticed four years ago difficulty in lifting his hammer with the right arm and the muscles began to waste; this progressed and obtained its maximum intensity in about a year after the onset of the weakness and for the last six months the patient had had to give up his work entirely. When seen by me in January of this year there was extreme atrophy of the muscles on the front and back of the arm, the condition being rendered most noticeable by the contrast furnished by the splendid musculature of the shoulder girdle and forearm muscles. The affected muscles responded to the faradic current to as full an extent as could be expected from their atrophied condition and to galvanism they gave the normal polar reaction. No other feature was noticed in the case, which is thus an example of the extreme atrophy which may follow simple over-use.

The foregoing cases illustrate some of the ways in which primary neuritis may affect the upper limb and may, to a certain extent, be regarded as types of disease. Enumerating these again we may have: (1) Erb's palsy of the upper part of the brachial plexus; (2) Klumpke's palsy of the lower part of the plexus; (3) the uniradicular paralyses described by Farquhar Buzzard in which the lesion is limited to one of the nerves forming the brachial plexus; (4) a monoplegia; (5) a multiple localised neuritis; (6) a paralysis of a peripheral nerve; and (7) a "professional" or occupation palsy, which in some cases is due to an actual neuritis and in others is the result partly of pressure, partly of over-use. *Speaking generally one may perhaps say* that the existence of these spontaneous [illegible]dinarily [illegible]e much *careful* [illegible] of the muscles affected, and the age and mode of onset will usually [illegible] Since several of the cases were observed [illegible] *of the prognosis*, the [illegible]aided by the condition of the electrical reactions.

Liverpool.

REMARKS ON THREE CASES OF ACUTE INTESTINAL OBSTRUCTION.

BY T. CRISP ENGLISH, F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND; ASSISTANT SURGEON, GROSVENOR HOSPITAL FOR WOMEN; AND SURGICAL REGISTRAR, ST. GEORGE'S HOSPITAL.

THE following three cases of acute intestinal obstruction were admitted into St George's Hospital under the care of Mr. Clinton T. Dent, to whom I am indebted for kind permission to publish them. The cases are reported as they form an interesting series in which acute obstruction was survived for several days and in two of the cases successfully relieved by operation. The old days in which fæcal vomiting was looked upon as the indication for laparotomy are now fortunately over, but cases of prolonged vomiting must still occur, either on account of failure to recognise the condition early or because the patient has at first refused operation. Recovery after three or four days' feculent vomiting gives us more hope for these patients than was formerly thought justifiable. The cases further serve to illustrate the beneficial effects of saline irrigation in abdominal operations, a point which is discussed later.

---

[7] St. Bartholomew's Hospital Reports, vol. xxix., p. 310.

CASE 1.—A female, aged 28 years, was admitted into St. George's Hospital on Nov. 21st, 1902, with the symptoms of acute intestinal obstruction. On Nov. 16th she gave birth to a child, labour following the normal course of events, but shortly after its completion she was suddenly seized with severe abdominal pain and vomited. The pain continued with acute exacerbations at intervals and the vomiting persisted. Some slight temporary relief was at first afforded by hot applications to the hypogastrium. On the 19th, however, the vomiting became feculent and the general condition was decidedly worse. The bowels acted very slightly on this day after enemata, but apart from this there was absolute constipation, no flatus being passed. The patient was strongly urged by her medical attendant to come to the hospital on the 20th, but refused. She had had two children previously, and a severe attack of perimetritis had followed the birth of the first child two years before the present time. On admission the patient was obviously very ill and was vomiting very foul feculent material. The pulse was 120, the temperature was 99° F., the tongue was fairly clean, and the intelligence was unaffected. The abdomen was considerably distended and active peristalsis was seen especially in the epigastric region; there were pain and tenderness in the right lumbar region, but otherwise the abdomen was soft and moved fairly on respiration. No tumour was palpable. Dr. A. F. Stabb examined the patient and found the uterus enlarged and filled with offensive blood clot; he recommended that it should be washed out but thought that the obstruction was quite independent of the uterine condition. Operation was performed three hours after admission, the abdomen being opened in the mid-line below the umbilicus. The intestines were distended and rather dark; collapsed small intestine was at once found but was first traced in the wrong direction down to the ileo cæcal valve. On tracing it upwards an obstruction was found almost immediately about 18 inches above the ileo-cæcal valve in the right lumbar region. It was of a very complicated nature and the parts could not be drawn up to the wound owing to the presence of old adhesive peritonitis. Two coils of intestine were closely bound together by a short thick band, which at the same time produced very sharp kinking of one coil. At first it seemed impossible to divide the band without wounding the intestine, but by careful stretching a space of about half an inch appeared between the two coils; the band, which was very tough and obviously of long standing, was then divided with scissors. The united coils immediately separated widely and a little of the contents of the dilated portion was seen to pass on at once; the gut below the seat of obstruction, which had been extremely collapsed, was freely irrigated with saline solution and stroked downwards with the fingers, the part nearest the cæcum showing at first no tendency to dilate. The amount of general distension, although considerable, did not seem to warrant puncture of the intestines. The abdominal wound was then closed. The uterus was irrigated and some portions of placenta were removed. Hæmorrhage was free and so the cavity of the uterus was plugged with gauze. The stomach was washed out before and at the end of the operation; at the second washing the stomach was as full as at the first and contained equally foul fluid. The vomiting immediately improved in character and frequency, ceasing altogether in 12 hours. There was at first considerable distension, and the patient was rather collapsed, although stimulants were given freely. The bowels acted 60 hours subsequently to operation after the administration of castor oil and senna, three copious evacuations occurring which gave the patient much relief; a considerable quantity of flatus was also passed by the rectal tube. During the first four days there were much colicky pain and evidence of localised peritonitis in the right lumbar region, and on the 23rd a very severe attack of sharp pain occurred. The plug was removed from the uterus on the 22nd, after which a douche of biniodide of mercury was used twice daily. The further progress was satisfactory and the patient was discharged on Dec. 20th. She was seen again in February and was then quite well.

The obstruction in this case was in great part due to the band, but in some degree evidently to acute kinking of one of the intestinal coils. The attack of acute pain on the 23rd may have been due to the stretching of newly formed adhesions, or to the passage of some solid matter over the site of obstruction, probably to the latter. Mr. Dent stated that he had met with similar pain twice before—once in a case of volvulus and once in a case of appendicitis complicated by a band partially occluding the ascending colon. The sign is an alarming one, but a good one.

CASE 2.—On the same day a female patient, aged 43 years, was admitted with very similar symptoms of the same duration. She had had six children and for years previously had suffered from a severe attack of perimetritis following confinement; apart from this there had been no abdominal symptoms until the present attack. On Nov. 16th she was suddenly seized with acute pain, situated first at the umbilicus, and later settling to the left iliac and lumbar region. Vomiting occurred immediately and continued at frequent intervals. During the first 24 hours there were three or four severe paroxysms of acute pain, but after this the pain subsided to a large extent. The bowels remained obstinately closed in spite of purgatives and enemata and the vomiting became more severe, being stercoraceous on the 18th. Abdominal distension now became apparent and steadily increased. On admission on Nov. 21st the general condition appeared to be good, the tongue was clean and moist, but there was constant feculent vomiting. The abdomen was greatly distended and was tympanitic all over, the liver dulness being diminished. There was tenderness in the left iliac fossa, but no tumour could be made out. The rectal examination was negative. Operation was performed shortly after admission, the stomach being washed out as soon as the patient was under the anæsthetic. A median incision was made below the umbilicus and greatly distended purple-coloured intestines presented. The site of obstruction was found immediately and was in the left iliac fossa, where there was evidence of old peritonitis. One band was broken through on the finger and another broader and exceedingly tough band was divided with the scissors. The constricted small intestine immediately rose to view and did not appear damaged beyond recovery. The contents of the intestine above the constriction appeared to pass on at once The involved coils were freely irrigated with saline fluid and this enabled reduction of the intestines to be effected easily. The fluid diminished the distension in a most marked manner, but in the epigastric region distension was again beginning before the bandages had been completely applied. The question of opening the small intestine immediately and draining with a Paul's tube was raised, but the patient's condition was so bad that further operative measures were impossible, and so the abdomen was rapidly closed. Fæcal vomiting recommenced at the conclusion of the operation; the patient failed to rally and died an hour later. At the necropsy it was found that a constriction about 20 feet above the ileo-cæcal valve had been completely relieved and no other strangulation or bands were present. The whole of the small intestines and the stomach were full of feculent material. Numerous adhesions of old date existed between the bowels and the abdominal parietes and a coil of small intestines was very firmly adherent to the back of the uterus from which it could not be separated without dissecting off its superficial layer.

CASE 3.—A man, aged 40 years, was admitted on April 9th, 1903, with a history of seven days' acute obstruction. The patient had suffered from dyspepsia for several years but had never had acute abdominal pain before the present attack. On April 2nd whilst standing talking to a friend he had been suddenly seized with very severe pain, referred at first to the umbilicus and later to the right iliac fossa; vomiting occurred immediately and gave some relief. The patient then went to bed and the pain which had lessened again became severe; a second short remission then occurred after which pain and vomiting continued. The bowels remained completely confined; castor oil was given on the 5th and enemata on the 6th, all without effect. The nurse stated that since the 5th the vomit had been brown, smelling very offensively, and had occurred from six to 12 times a day. The pain remained localised to the right iliac fossa throughout. On admission on the 9th the patient looked profoundly ill. There was distension of the abdomen, mostly in the lower part, and the liver dulness was diminished; there was slight tenderness over the lower part of the right rectus muscle but not elsewhere. There was no rigidity, no tumour was felt, and there were fair movements on respiration. The patient twice vomited offensive feculent material whilst in the surgery. Operation was performed shortly after admission. Before the administration of the anæsthetic the stomach was thoroughly washed out and a quantity of brown stercoraceous material was removed, the washing finally being clear; chloroform was then given and Mr. Dent opened the abdomen in the right semilunar line by a five-inch incision. The peritoneum was found to be inflamed and distended; the intestines were purple-coloured and covered with a few flakes of lymph; there was no free fluid. In the right iliac region a coil of intestine was found rather loosely constricted by an omental band, the exact anatomy of which could not be determined; the distal end of the band was attached towards the region of the appendix. The band was stretched with the finger, divided with scissors, and the proximal end was ligatured; the distal end was clipped, but the clip came away at once and no more was seen of this end. The intestine below the constriction was very collapsed; above it it was moderately distended with flatus; at the level of the constriction ulceration had occurred through the peritoneal coat and partly through the muscular coat. The intestines were irrigated with saline fluid throughout the operation. At the end of the operation the stomach was again washed out, as the patient commenced to vomit, and more stercoraceous fluid was withdrawn. The bowels were opened with some difficulty on the 13th; vomiting and slight abdominal pain occurred on this day and were at once controlled by $\frac{1}{25}$th grain doses of cocaine hydrochlorate given every four hours. Rectal feeding was employed for 48 hours, after which fluids were given by the mouth, and on the 15th fish diet was ordered. The wound healed slowly, the skin at first showing very little attempt at union. The patient got up on May 11th, was sent to the convalescent home on the 13th, and when seen last on July 16th was perfectly well.

The use of saline irrigation in abdominal operations has scarcely received the attention that it deserves. In many cases of acute obstruction, whether in children or adults, and in other conditions where the intestines are distended or otherwise involved, the method is of the greatest value. In each of the three cases described above the intestines were constantly irrigated with warm saline fluid by an assistant throughout the operation. Normal saline fluid at a temperature of 108° F. was used, for it is found to be absorbed more quickly than water and so to produce more rapid and marked effects. The saline fluid was *not* used in the place of more irritating antiseptic fluids to wash out the peritoneal cavity but with other objects. The following are the advantages claimed for the method.

1. *Distension of the intestines* is usually greatly diminished and this is a factor of utmost importance, both in regard to the direct effect upon the patient and the ease with which the necessary manipulations are carried out. During the course of the operation the exposed intestines are very liable to become dry and chilled, and then rapidly lose their power of absorbing the gases which are being produced, and so distension already existing is increased. A dry intestine must necessarily be a distended one, the two terms becoming synonymous. Saline irrigation will keep the intestines both warm and moist. It is by far the simplest and most effectual way of keeping the exposed parts warm, and with warmth evaporation proceeds more slowly and distension is correspondingly lessened. Moreover, the fluid is rapidly absorbed and the intestines are seen and felt to become heavier and collapsed; the tone of the bowel is recovered, the gases are again dissolved in the fluid, so that distension greatly diminishes or disappears. The heavier and undistended intestines readily sink back into the peritoneal cavity and this renders suture of the abdominal wall much easier, for distended intestines are not easily replaced without force and when dry their serous coat is easily lacerated. In these cases they have to be handled with the greatest care and few things are more embarrassing than the escape of distended coils from an abdomen in which it seems impossible to make room for their return. The improvement in the condition of the intestine following the use of saline irrigation will usually obviate these difficulties. It has been stated as an objection to this treatment that the abdomen often already contains more than it can readily hold and that in children especially there is frequently the greatest difficulty in keeping the intestines within the abdominal cavity and so the addition of fluid will only increase this difficulty. The objection is, however, based on theoretical rather than practical grounds, for it has been repeatedly seen that after free saline irrigation the intestines, distended at the commencement of the operation, collapse and become heavy; the actual bulk that has to be replaced is greatly lessened and they drop back into the abdominal cavity as soon as the edges of the wound are raised.

2. *Shock*, which always attends these operations, is diminished by the free absorption of saline fluid. The effect on the pulse and respiration very rapidly shows itself and there is the further advantage that several pints in this way may be more quickly introduced into the circulation than by other methods. The amount of fluid which can be left inside the peritoneal cavity is a variable quantity, depending largely on the condition of the intestines and the elasticity of the abdominal walls. If the distension be great and the abdominal walls elastic much of the fluid will escape during the closure of the wound, and probably only from half to one pint will remain inside; in a majority of cases, however, a much larger amount can be left behind. The essential point, however, is that large quantities of fluid are absorbed during the course of the operation if irrigation is carried on throughout.

3. *Thirst*, which is one of the most distressing features after abdominal operations, is undoubtedly diminished as a result of the free absorption of fluid. Innumerable factors, both general and local, enter into the pathology of thirst; of these the most important is relative tissue dryness following dilatation of the vessels in the splanchnic area and this can only be effectually relieved by adding fluid to the general circulation. Saline irrigation is the most convenient and most rapid way of effecting this object, and the results are much more satisfactory than those following the use of enemata of warm water or saline solution.

4. The influence of irrigation upon the *subsequent formation of adhesions* is an important point. The frequency with which these peritoneal adhesions give rise to chronic abdominal pain is well known and, further, several cases have been recorded in which a second attack of intestinal obstruction has occurred owing to adhesions in the neighbourhood of the original obstruction. Where there is a likelihood of peritoneal adhesions following the best way of minimising or preventing them is to leave as much fluid as possible in the peritoneal cavity. The intestines are thus rendered as it were more slippery and, moreover, smaller areas of peritoneal surfaces will be in contact with each other, owing to the presence of the fluid. The drier the peritoneal surfaces the more likely are they to adhere and to cause subsequent trouble. In certain cases, however, the formation of adhesions may be the best thing for the patient and then irrigation should be avoided. So, too, if there should be free oozing from adhesions or raw surfaces, irrigation will tend to maintain and to increase the bleeding.

5 Renal secretion is greatly increased and thus many of the toxic products circulating in the blood are eliminated through the kidneys.

The importance of systematically washing out the stomach in cases of intestinal obstruction can scarcely be overestimated, especially if there be severe stercoraceous vomiting. A large quantity of offensive material is thus usually got rid of. The stomach should be first washed out before operation with a soft stomach tube and a glass funnel, removing the fluid by syphon action until it is returned quite clear. Then at the end of the operation the process is repeated and it will usually be found that a large quantity of intestinal contents is again drawn off, which must otherwise have drifted back into the duodenum or have been vomited by the patient. The thorough removal of this foul poisonous material is an enormous advantage to the patient. The treatment is by no means completed by the operative relief of the actual obstruction. There are two factors which may lead to a fatal issue in spite of an apparently successful operation and these are the continued toxæmia and the mechanical effects of distension. The former of these is the most important; toxic products continue to be absorbed and the patient instinctively attempts to get rid of these by emptying his alimentary canal. Foul and decomposing matter continually pours into the stomach, leading to copious and incessant vomiting. The most efficient way of assisting the patient is by frequently washing out the stomach. There is the further advantage that the tendency to vomit during operation is minimised, a danger which is a very real one, death having frequently occurred in these cases owing to this accident.

Careful massage of the injured bowel was performed in two of the cases and produced most marked effects. The bowel was gently stroked downwards from the dilated to the collapsed portion, and although there had been excessive collapse below the constriction it was seen unmistakably to regain power and to resume peristalsis. It is incidentally mentioned in Case 1 that the collapsed intestine was first traced downwards towards the cæcum and away from the obstruction. The greatest difficulty is often experienced in determining which is the upper end of a given coil of intestine; the best way of settling this is to run the finger along the mesentery, following a large vessel if possible, and finding to which side of the spinal column the finger is guided. In the dead subject this manœuvre is comparatively easy but mistakes are readily made during operations. Lastly, the use of cocaine hydrochlorate for the irritable vomiting, which often occurs during the first few days after operation, must be mentioned. It is given in doses of from $\frac{1}{4}$th to $\frac{1}{20}$th of a grain in adults and from $\frac{1}{25}$th to $\frac{1}{100}$th of a grain in children and may be repeated every four hours if necessary. Experience of the drug in several cases has shown that it is effectual and gives the patient great relief.

Grosvenor-street, W.

A NOTE ON A CASE OF PUERPERAL SEPTICÆMIA TREATED BY ANTI-STREPTOCOCCIC SERUM.

By JOHN M. MACKENZIE, L.R.C.P. & S. EDIN.,

AND

W. B. BLANDY, M.R.C.S. ENG., L.R.C.P. LOND.

ON Nov. 28th, 1902, one of us (J. M.) was called to see a primipara, aged 23 years, who was in labour. On arrival parturition was found to be so far advanced that the head was presenting between the labia. No manipulation was necessary beyond supporting the perineum. Half an hour later, at 4.20 A.M., a perfectly normal labour was completed. The placenta and membranes were expelled without difficulty and no lesion was found to exist in the parturient tract. In fact, with the single exception of the presence of a midwife, everything promised an early and favourable recovery. The midwife, as often happens, was in this case an element of danger, for she had, on her own confession, three times examined the puerpera per vaginam. Further inquiry elicited the fact that on the night of Nov. 23rd and morning of the 24th this same midwife nursed a patient who was suffering from numerous septic ulcers and who died from phthisis and lupus vulgaris. The room in which this patient died was exceedingly small and filthy and for many years there had never been any efforts in the way of cleanliness practised by those in charge of her. The puerpera was seen again at 12 noon on the day of the confinement and was found to be progressing favourably. At 4 P.M. on the 29th it was found that the patient had had a bad night with little or no sleep. She complained of severe pain in the back which had lasted for several hours. Her face was flushed and she was breathing laboriously and at the rate of 36 to the minute. The pulse was of very low tension and its rate was 136. The temperature was 102·4° F. The lochia were already offensive. The bowels had been moved naturally. The vagina and the lower part of the uterus were there and then douched with a solution of perchloride of mercury (1 in 2000). The patient was given a powder containing 10 grains each of sulphate of quinine and compound ipecacuanha powder. At 9 P.M. on the same evening the temperature had risen to 103·4°, the pulse was 140 and very feeble, and the respiration-rate was 40. Thus within 36 hours was found a state of things surely indicating the presence of acute septic poisoning and, as the earlier the onset the graver the prognosis, the worst was feared. On the 30th at 10 A.M. the temperature was 99·4° with a pulse-rate of 89. The patient had had 11 hours' sleep during the night. The severe pain in the back had disappeared and the general condition was improved. Believing that the improvement was temporary (the morning remission in such a case) the uterus was thoroughly and slowly douched with six pints of a solution of corrosive sublimate (1 in 2000), the process being an hour in completion. At 6.30 P.M. the temperature was 99 6°, the pulse-rate was 84, and the respiration-rate was 30. The patient complained of some headache but otherwise the general condition appeared to be good. After consultation it was agreed to inject ten cubic centimetres of antistreptococcic serum between the scapulæ. To obviate the pain and to insure uterine contraction a hypodermic injection of hydrochloride of cocaine (a quarter of a grain) and citrate of ergotinin ($\frac{1}{100}$th of a grain) was given in the area selected two or three minutes before the serum was administered. On Dec. 1st at 11 A.M. the temperature was 99° and the pulse-rate was 84 and still of low tension, while the respiration was normal in rate. The uterus was again douched with six pints of a solution of perchloride of mercury (1 in 2000); the time taken in doing this was again an hour. At 5 P.M the temperature had risen to 101°, the pulse was 112 in rate, dicrotic, and of low tension, and the respiration-rate was 32. Ten cubic centimetres of serum were again injected, preceded by a quarter of a grain of hydrochloride of cocaine. On the 2nd at 11 A.M. the temperature was 103 6°, the pulse was 130, and the respiration was 38. The patient had had a bad night, having had diarrhœa with frequent watery and bloody stools. She appeared exhausted and helpless, with a pinched look and a very marked tremor of both hands and feet. She complained for the first time of extreme tenderness in the hypogastrium. No meteorism was present. Her general condition was so unsatisfactory and the exhaustion produced by the diarrhœa was so extreme that we deemed it wise not to carry out any local treatment. The patient was given a powder containing a quarter of a grain of acetate of morphia with ten grains of carbonate of bismuth. The feeding was to consist simply of small quantities of boiled milk and lime-water. In view of the possibility of the diarrhœa being produced by the use of corrosive sublimate we resolved to discontinue it and to substitute douches of boiled water and tincture of iodine (one drachm to the pint). At 8.15 P.M. the temperature was 101°, the pulse was 112, and the respiration-rate was 24. The general condition had much improved since the morning. The uterus was douched with six pints of a solution of tincture of iodine (one drachm to the pint). A hypodermic injection of hydrochloride of cocaine (a quarter of a grain) and citrate of ergotinin ($\frac{1}{100}$th of a grain) was given, followed by ten cubic centimetres of serum. On the 3rd at 10 30 A.M. the temperature, the pulse, and the respiration were normal. The patient had had a good night with ten hours' sleep and her general condition was much improved. At 8 P.M. the temperature was 98·8°, the pulse-rate was 92, and the general condition of the patient was good. The vagina alone was douched and no serum was given On the 4th at 11 A.M. the temperature was 98°, the pulse was 88, and the respirations were 18. At 8 P.M. the temperature was 100 2° and the pulse-rate was 96 The vagina was douched with three pints of 1 per cent. lysol. On the 5th at 10.30 A.M. the temperature, the pulse, and the respiration were normal. The patient expressed herself as being "well" and as "able to get up." After this date she made an uninterrupted recovery.

The sole reason for communicating this note is to record our estimate of the value of antistreptococcic serum. Taking the case in the light of its etiology and the remarkably early onset of septic symptoms we believe that the administration of antistreptococcic serum played a beneficial part in its treatment. A few minutes after the injection of serum the pulse was noticed to improve in tone and tension and had a greater volume; probably the improvement in the pulse was aided by the ergotinin which was solely given to aid uterine contraction and so, if possible, to diminish the area for septic absorption. The administration of serum was adopted fairly early. Soon after each injection the temperature dropped, the pulse improved, and in two or three hours there was an improvement in the appearance of the patient with a corresponding sense of comfort and well-being. But it cannot be said that this improvement lasted for more than 13 or 14 hours. As in other cases in which we have used antistreptococcic serum the dose had to be repeated daily in order to keep up the favourable effects.

We are convinced that in a case of puerperal septicæmia serum alone should not be relied on; local treatment, particularly the douching of the uterus with one or other of the solutions in vogue, should never be neglected. It appears that if the absorption of septic material be allowed to continue unhindered, antistreptococcic serum of itself is not sufficient to control the symptoms, much less to insure recovery. In this case it has been found the helpful handmaid of other measures and, from previous experience of its use, we believe that it greatly militates against the exhaustion, the depression, and the liability to rigors which follow the douching of the uterus, however gently and skilfully done. The contrast that exists between the temporary improvement produced by antistreptococcic serum in a puerperal case and the permanent improvement produced by antidiphtheritic serum in a case of diphtheria is very striking. Both give in a very short time a clinical picture of sudden return to health, improved aspect, improved pulse, temperature, and respiration, with a sense of well-being on the part of the patient, the one very evanescent, the other permanent. The serum used was obtained from the laboratories of Messrs. Burroughs, Wellcome, and Co.

Kirkby-in-Ashfield.

A CLINICAL COMPARISON OF THE MATERNAL PELVIS AND OF THE FŒTUS IN EUROPEANS, EURASIANS, AND BENGALIS:

AND THE ENUNCIATION OF A NEW LAW IN ACCORDANCE WITH WHICH THE SIZE OF THE CHILD AT BIRTH IS DETERMINED.

BY CLAYTON ARBUTHNOT LANE, M.D. LOND.,
CAPTAIN, I.M.S.

THE investigation here recorded was carried out at the Eden Hospital, Calcutta, during the latter part of the year 1901 and consisted in the weighing of children and the measuring of their heads at birth, and the measuring of their mothers' pelves about the tenth day after delivery. The children were all weighed on the same scales with the same weights and all the measurements were made with the same pair of callipers which was tested against an accurate tape measure. As regards the weighing and measuring of the children there is no need to make any comment thereon beyond remarking that in the case of the bimastoid diameter the points of the callipers were placed in the horizontal groove which is readily to be found running at the base of the mastoid process in all children at birth unless they are unusually large, and which even then may generally be found if carefully looked for. Turning to the pelvis, the intercristal diameter calls for no particular comment. The interspinous diameter was measured by pressing the two thumbs firmly outwards against the anterior superior spines of the ilia and in bringing the points of the callipers also against the thumbs.

It will be evident that this method of measuring the diameters of the false pelvis has the objection that it tends to exaggerate the difference between the intercristal and the interspinous diameters, because in the first measurement twice the thickness of the subcutaneous tissues and skin is added to the longer measurement, while in the second case the same amount is subtracted from the actual distance between the spines, so that the difference between the two is exaggerated by four times the thickness of the skin and subcutaneous tissues. At the same time this method gives much less variable results in the same case than can be obtained by marking on the skin the points which are judged to overlie the spines and measuring their distance apart, and it is on this account that it has been selected as being on the whole the most trustworthy. These measurements, then, as indicating actual distances, are not accurate, but if taken as comparative measurements this objection will not apply to them if a sufficient number of cases be taken, particularly if the women are of the same race and build. By far the most important clinical measurement of the pelvis is the antero-posterior diameter of the brim. The conjugate diameter may in most cases be readily measured as soon as the involution of the uterus has proceeded so far that the organ has sunk below the brim of the pelvis, at which time the involution of the abdominal wall is still incomplete and the hand can generally be made to sink in between the recti abdominis muscles, so that the tip of the middle finger is pressed strongly against the promontory of the sacrum, the patient lying on her back with her thighs flexed. The hand is then depressed till its radial edge comes into contact with the upper or anterior edge of the symphysis pubis, the point of contact being marked off by one of the nails of the other hand. The distance from this point to the tip of the middle finger is then measured off by callipers. If this manipulation is attempted too soon after delivery the presence of the uterus in the superior strait prevents its accomplishment, while if attempted too late the recti abdominis come together and make it difficult or impossible to reach the promontory.

Among the women measured were Europeans, Eurasians of varying degrees of colour saturation, Bengalis, Jewesses, Urias, and up country women, but the only classes measured in sufficient numbers to give figures of any comparative value were Europeans, Eurasians, and Bengalis. There will be found below a comparison between the pelves of Eurasians in whom the degree of colour saturation is slight and those in whom it is great, and the term "East Indian" will be used to indicate those in whom the dark blood predominates. But unless it is expressly so stated it is to be understood that the term *"Eurasian" includes all those of mixed blood, whether* fair or dark.

During the period under consideration there were born at the Eden Hospital 184 full-time Bengali children, having an average weight of 5·457 pounds. Of these 111, or 60·326 per cent., were males, having an average weight of 5·465 pounds, while 73, or 39·674 per cent., were females, having an average weight of 5·443 pounds. In the case of 53 Bengali children born prematurely, or of whom it could not be certainly said that they were full-term children, 29, or 52·83 per cent., were males and 24, or 47·17 per cent., were females. Of the total number of 237 Bengali children born during the period 140, or 59·072 per cent., were males and 97, or 40·928 per cent., were females. Of European and Eurasian children there were born during the same period 173 of both sexes with an average weight of 6·937 pounds. Of these, 53 were Europeans with an average weight of 7·312 pounds, that number being made up of 30 males, or 56·604 per cent., whose average weight was 7·625 pounds; and 23 females, or 43·396 per cent., whose average weight was 6·937 pounds; while 120 were Eurasians with an average weight of 6·75 pounds, 63, or 52·5 per cent., being males with an average weight of 6·875 pounds, and 57, or 47·5 per cent., being females with an average weight of 6·625 pounds.

Turning now to the pelvis the number to be dealt with is unfortunately much smaller. Since all children born at the Eden Hospital are weighed, the weights are available without special investigation. The systematic measurement of the pelvis was only begun about the middle of the year and the numbers are further lessened by the fact that a certain proportion of women left the hospital for one reason or another without submitting to further examination, and that in others it was not found possible when examining them ten days after delivery to reach the promontory through the abdominal wall. In the latter case the interspinous and intercristal diameters were measured, even though the length of the conjugate could not be ascertained. In Table I. are shown the pelvic measurements of adult Bengalis in whom, as far as could be ascertained, the shape of the pelvis was normal. It will be seen that the average conjugate diameter is 4·008 inches, the average interspinous diameter is 7·818 inches, and the average intercristal diameter is 9·607 inches; and, further, that the average intercristal and interspinous measurements bear no relation to the length of the conjugate diameter. The

TABLE I.—*Showing the Measurements of the Pelvis in Bengali Females of 18 Years and over in whom it appeared to be Normal.*

No. of cases measured.		Average	Average	Percentage of interspinous to intercristal diameter.
6	3·5	8·156	9·785	83·352
14	3·75	7·797	9·402	82·929
20	4·0	7·925	9·665	81·997
14	4·25	7·684	9·464	81·192
7	4·5	7·946	10·179	78·063
13	Uncertain.	7·567	9·596	78·857

[illegible] of cases examined, 74; average length of the con- [illegible] last column, however, of this table is of considerable interest. It shows the percentage which the length of the average interspinous diameter bears to the average intercristal diameter (that is, the length of the interspinous diameter, if the length of the intercristal diameter is taken as 100), and it is remarkable that as the conjugate diameter increases this percentage becomes less—that is to say, that with increase in the conjugate diameter the tendency is for the iliac crests to bend more sharply inwards, while with a smaller conjugate diameter the bend is less abrupt, possibly in the latter case a retention of the infantile type. The regularity of decrease in this proportion, as the conjugate increases, shows that in spite of the smallness of the numbers concerned they may probably be taken as reliable and that they are likely to be confirmed when larger numbers of measurements are available. These numbers, however, are of no clinical value in any given case, for a glance at Tables II. and III. will show that, whatever the size of the conjugate diameter, the interspinous and intercristal diameters vary both actually and relatively within wide limits, so that they cannot be taken as indications of the former. During the period under consideration the pelves of 16 purely European women were measured, the average conjugate diameters being 4·411 inches, the interspinous diameters 8·24 inches, the intercristal diameters 10·367 inches, and the percentage of the interspinous to the intercristal 79 477.

TABLE II.—*Showing the Minimum, Maximum, and Average Lengths of the Interspinous and Intercristal Diameters for Varying Lengths of Conjugate Diameter in Bengalis.*

Length of the conjugate diameter in inches.	Number of women examined.	Length of the interspinous diameter in inches.			Length of the intercristal diameter in inches.		
		Minimum.	Maximum.	Average.	Minimum.	Maximum.	Average.
3·5	13	7 0	8·5	7·861	9·25	10 5	9·5
3·75	9	7·0	8·75	8·397	8·125	10·5	10·125
4 0	20	6·25	9 0	7·925	9 25	10·75	9 665
4·25	14	7·0	9 25	7·684	8·125	10 875	9 464
4·5	7	7·0	8·75	7·946	8·75	10·75	10·179

TABLE III.—*Showing the Maximum and Minimum Proportional Difference in Bengalis between the Interspinous and Intercristal Diameters for varying Lengths of the Conjugate Diameter. The Intercristal Diameter is taken as 100.*

Conjugate diameter in inches.	Minimum percentage of the interspinous to the intercristal diameter.	Maximum percentage of the interspinous to the intercristal diameter.
3·5	80 954	88·393
3·75	72·308	96·923
4 0	67·567	89·474
4·25	71·233	86·154
4 5	65·116	87·5

It is interesting to note the effect of the admixture of dark and white races on the pelvis. For purposes of registration it has been the custom at the Eden Hospital to divide the mixed race into two classes, the fairer being classed as "Eurasians" and the markedly dark as "East Indians." Of Eurasians the average conjugate diameter in 32 was 4 250 inches and the average interspinous and intercristal diameters in 37 were 8·092 and 10·152 respectively. Whereas in nine East Indians these diameters were 3·937, 7 472, and 9 662 inches respectively, the percentage of interspinous to intercristal diameter in the two classes being respectively 79·708 and 77·335. In Table IV. these facts are conveniently brought together. It will be seen that the tendency of the admixture of the native with the European is to diminish the pelvis of the latter in all its diameters. If one may take it for granted that the native element in these Eurasians is Bengali (which is by no means certain) then it appears that its admixture with the European tends to make the pelvis in its conjugate and interspinous diameters even smaller than the Bengali pelvis, but that the shape of the false pelvis so produced is not that of the Bengali pelvis.

TABLE IV.—*Showing the Average Clinical Measurements of the Pelvis in Europeans, Eurasians, East Indians, and Bengalis.*

—	Average conjugate diameter in inches.	Average interspinous diameter in inches.	Average intercristal diameter in inches.	Average percentage of the interspinous to the intercristal diameter, the latter being 100.
Europeans ...	4·41	8·24	10 367	79 477
Eurasians... ...	4 25	8·092	10 152	79 703
East Indians ...	3·937	7·472	9 662	77 335
Bengalis	4 008	7·818	9 607	81·823

Turning to the child's head, the measurements show regular gradations, the East Indian being smaller than the Eurasian and the Bengali being smaller than the East Indian head. The European heads measured were only 14 in number and the deductions therefrom are doubtful, but in the case of Eurasians (including East Indians) and Bengalis the numbers are 48 and 53 respectively and are sufficiently large to allow of safe deductions being drawn (*vide* Table V.).

TABLE V.—*Showing the Average Measurement in Inches of the Heads of Infants taken within 24 Hours of Birth*

—	Biparietal diameter.	Bimastoid diameter.	Suboccipito-bregmatic diameter.	Occipito-frontal diameter.	Maximum diameter.
At the Eden Hospital—					
Bengalis	3·332	2 843	3·592	4 207	4 861
Eurasians	3·540	3 050	3·723	4·369	5·047
Europeans...	3 667	3 075	3·741	4·461	5·238
In Paddington—					
Europeans...	3·528	3·162	3·766	4·169	5·142

The average measurements of 43 European children born in Paddington and measured by me when resident obstetric officer at St. Mary's Hospital, Paddington, are added. These latter were measured by a pelvimeter graduated in centimetres which was tested against an accurate tape measure and found to be correct and have been reduced to inches.

This investigation had not been carried on for long when it appeared that there was a relationship between the size of the pelvis as measured by its conjugate diameter and the size of the child which passes through it. In order to test the truth or otherwise of this idea the children were divided up into several series according to the size of the conjugate

TABLE VI.—*Showing the Average Weight of the Child born through Different Sizes of Conjugate Diameter.*

Size of the conjugate diameter in inches.	Europeans, Eurasians, and East Indians.		Bengalis.	
	Number of women measured.	Average weight of child in pounds.	Number of women measured.	Average weight of child in pounds
3·5	2	6·125	6	5 25
3·75	4	5·5	12	4 95
4·0	14	6·875	23	5 49
4·25	13	6 961	16	5·8
4 5	8	7·393	5	6 1
4·75	7	7·428	0	—
5·0	2	8·062	0	—

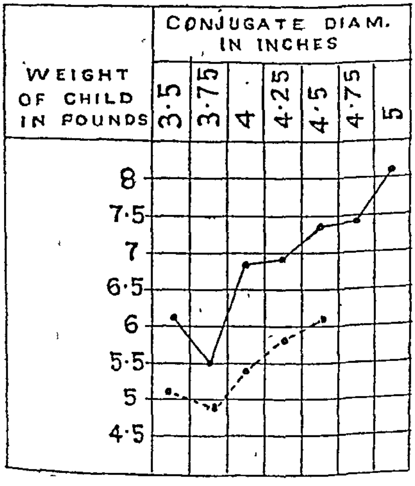
Average conjugate of Europeans, Eurasians, and East Indians, 4 25 inches; [illegible] alis, 4·008 inches; average weight of a child [illegible] and East Indians, 6 966 pounds, average [illegible] ·33 pounds.

diameter through which they had passed and the average eight of each series was found. The Europeans and urasians (including East Indians) were massed in one ble and Bengalis in the other, the numbers being too few admit of any trustworthy result being obtained by con- [illegible]

others 18 years of age or over, who were in good health nd whose pelves were not obviously deformed on vaginal xamination. This has been the means of excluding young irls not yet fully matured; cases in which the sacrum was ent; in which the pelvic outlet was narrowed; and in which e mother was suffering from mitral stenosis, goitre, and hronic malaria. The intention has been to study if possible ormal cases only, and to exclude all cases in which there as any obvious diseased condition of the mother likely to nfluence the nutrition and growth of the child, and therefore s size at term. Similarly if there is any hereditary law f relationship between the size of the normal pelvis and at of the child which is to pass through it (such a w would of necessity be a hereditary one, a transmission of e normal laws of growth which had affected the mother to e child borne by her) it will obviously not hold good if the other's pelvis has after her birth been subjected to any bnormal conditions which will deform it and alter the elative lengths of its diameters.

The causes which influence the size of the child are ariously given by different authors. They are sex,[1] males eing heavier than females; the age of the mother,[2] though e age given as that at which the heaviest children are orn varies considerably; the number of pregnancies[3]; the tature and bulk of the father[4] and mother[5]; or their con-titution and health[6]; or, again, their advanced age,[7] the ast causing overgrowth; and, lastly, prolongation of pregnancy producing overgrowth.[8] The consensus of opinion eems to be that sex is the most important influence determining the size of the child and after that the next most mportant the number of previous pregnancies. The size of e father and mother is considered generally to have some nfluence on the size of the child, but no one, so far as I ave been able to discover, has ever stated that there is any elationship between the size of the mother's pelvis and the ize of the child. It is, however, obvious from a glance at able VI. and the diagram that speaking generally there is a very definite and marked relationship between the conjugate diameter of the normal pelvis and the size of the child which has to pass through it; and if in view of the care taken to exclude abnormally shaped pelves it may be granted that the size of the conjugate diameter is a measure of the size of these pelves generally, then it follows that there is a very definite relationship between the size of the pelvis and that of the child who is born through it. It will be remarked that this relationship is very definite and precise. Every step in increase in the conjugate diameter [illegible] the average size of the [illegible] e case of children born [illegible] with a conjugate of 3·5 inches and under.

In face of the remarkable relationship between child and pelvis found with all larger diameters of the conjugate there appears no need to consider that this apparent exception, occurring as it does at the lower end of the scale and in both series, invalidates the general law. Rather it seems fair to consider that a pelvis with a conjugate of 3·5 inches cannot be considered as one produced by normal laws of growth; that it is not a hereditary condition the effect of which would be transmitted to the child, but an acquired peculiarity not capable of being so transmitted, an acquired condition due to interference with the natural laws of growth which are thereby stultified, so that the child whose rate of growth in utero is still determined by these laws is no longer of a size proportional to that of the mother's pelvis



Europeans and Eurasians are shown by the continuous line and Bengalis by the dotted line.

Now this definite relationship between the size of the mother's pelvis and the weight and size of the child is most remarkable and yet, as just stated, it has, so far as I am aware, hitherto passed unnoticed. Such a law has a very practical bearing, as was first pointed out by Lieutenant-Colonel F. S. Peck, I.M.S. When the impression that some such relationship existed began to strengthen in my mind, I mentioned to him the direction in which the measurements seemed to lead, and his comment was that in that case, so long as the pelvis was normal in shape on examination, mere smallness was no indication for interference with the ordinary course of pregnancy or labour. In view of the fact since brought out that in a pelvis the conjugate diameter of which measures 3 5 inches the child is not proportionately small, his conclusion requires, I think, modification so as to exclude pelves with a conjugate below 3 75 inches, but with

Table VII.—*Showing the Average Length in Inches of the various Diameters of the Heads of Children born through Different Lengths of Maternal Conjugate.*

Length of conjugate diameter	Number of women examined.	Length of biparietal diameter	Length of bimastoid diameter	Length of sub-occipito bregmatic diameter	Length of occipito-frontal diameter	Length of maximum diameter.
			Bengalis.			
3 5	5	3 275	2 825	3 5	4·225	4 85
3 75	11	3 292	2 867	3 609	4 211	4 932
4 0	12	3 326	2 793	3 58	4 319	4 76
4 25	10	3 337	2 887	3 6	4 254	4 962
4 5	5	3 433	2 85	3·758	4 25	4 905
5 0	—	—	—	—	—	—
			Eurasians and East Indians.			
3 5	1	3 75	3 25	3·75	4 5	5 25
3 75	3	3 361	2·958	3 606	4 277	4 875
4 0	11	3 511	2 966	3 682	4 382	5 045
4 25	10	3 551	3 112	3·762	4·378	5·133
4 5	6	3 521	3·083	3 75	4 298	4 993
4 75	1	3 666	3 2	3 75	4 5	5 0
5 0	2	3 687	3 125	3 817	4 5	5 187
			Europeans.			
3 5	—	—	—	—	—	—
3 75	—	—	—	—	—	—
4 0	1	3 75	3 25	3 875	4 5	5 5
4 25	1	3 75	3 125	3 875	4 5	5 5
4 5	2	3 75	3 0	3 637	4 416	5 125
4 75	5	3 675	2 925	3 775	4·375	5 15
5·0	—	—	—	—	—	—

---

[1] Galabin, Lusk, and Spiegelberg.
[2] Galabin, Duncan, Lusk, and Spiegelberg.
[3] Galabin, Lusk, Spiegelberg, Lehmann, and Hirst.
[4] Galabin, Hirst, and Spiegelberg.
[5] Galabin, Hirst, and Spiegelberg.
[6] Lusk and Spiegelberg. [7] Hirst. [8] Hirst.

this exception there can be little doubt that it correctly lays down the principles of treatment in such cases.

Since it is the head of the child which is normally its widest part one would expect, in view of the facts already stated, to find a relationship between the size of the child's head and that of the pelvis of the mother. Table VII. is drawn up with a view to test this matter. Taking the numbers for Bengalis, which form probably the only series sufficiently large to give reliable results, it will be seen that no such thing occurs in the case of any diameter with the exception of the biparietal, although the suboccipito-bregmatic tends to increase with the size of the pelvis. Now the biparietal is the diameter which passes through the conjugate in normal labour,[9] so that the fact that there is a definite relationship between the length of the mother's conjugate and the child's biparietal diameters appears to be a strong confirmation of the law stated above. This conclusion is, however, open to objection and it might well be said that the parallelism is entirely due to the fact that the head is moulded during its passage through the pelvis in such a way that the biparietal is forced into conformation with the conjugate diameter. In attempting to determine this matter it becomes necessary to review some general considerations concerning the moulding of the child's head during delivery. Moulding may be either due to the influence of the hard or of the soft parts, an instance of the former being the dint or groove on the posterior parietal bone formed by a projecting promontory and of the latter the sloping forehead due to the pressure of the soft parts in a primipara. There is no doubt that in most cases moulding is largely due to the soft parts. One of the most striking cases in this series illustrative of this point is that of a Eurasian, a primipara, aged 30 years, in whom the head was retained on the perineum by the rigidity of the latter for about two hours. The conjugate diameter measured 4·5 inches; the child weighed only 5 pounds 8 ounces and the biparietal diameter measured 3·125 inches or 1·333 inches less than the conjugate The pelvis was not deformed. In this case moulding was very pronounced and could only have been produced by the soft parts. Another illustrative case was that of a European, a 7-para, aged 25 years, in whom the second stage was completed in ten minutes. The conjugate diameter was 4·75 inches and the biparietal diameter was 3·5 inches, or a difference of 1·25 inches. There was much overlapping; the perineum was very lax. In both of these cases there can be no question that the marked moulding wa produced by the soft parts only; in one case the perineum was rigid and the head was definitely moulded against it, while in the second case the moulding was due to the "reaction" on the child's head of the considerable force expended in the rapid dilatation of the soft parts. On the other hand, there was delivered a Eurasian, the biparietal diameter of whose child's head was 3·75 inches, while her conjugate diameter was estimated at 3·5 inches. Allowing a considerable margin for error there can be no doubt that in this case the head was compressed by the pelvis during labour and subsequently expanded before it was measured in the natural course of events.

Between those cases in which the pelvis undoubtedly affects the moulding of the child's head and those in which this is entirely due to the soft parts, there exists a regular series of cases, and it becomes very difficult to say at what point in the series the bony pelvis ceases to mould the child's head. The soft parts are stated to diminish the size of the diameters of the pelvis by an eighth of an inch unless the uterus forms part of them, in which case their thickness becomes much more. But it is probable from two considerations that in cases of obstructed labour the uterus does not have much influence in this respect. In the first place in these cases vaginal examination reveals the fact that, at least in the great majority of them, the uterus is soon drawn up out of the pelvis, and this is confirmed by the frequency of vesico-vaginal as compared with vesico-uterine fistulæ due to sloughing following prolonged pressure on the soft parts between the child's head and the mother's pelvis in prolonged labour. I do not recollect a single case of the latter in 18 months' practice at the Eden Hospital, whereas the former was not infrequently seen. On the other hand, in cases in which labour is not difficult the uterus frequently lies low in the pelvis, so much so that the anterior lip of the cervix may even lie below the bony outlet. In such cases it is difficult to say to what extent the pelvic wall, acting through the intervening uterus, compresses and moulds the child's head. Indeed, there is considerable reason for thinking that (the updrawing of the uterus being an automatic act proportional in extent to the resistance to be overcome) in a roomy pelvis the uterus will usually lie low, forming a packing, so to speak, round the child's head and preventing a precipitate labour by bringing the resistance of the bony pelvis to bear on the child's head. If this is so, then the resistance, and therefore the amount of moulding, will vary inversely with the facility with which the uterus can be drawn up out of the pelvis—that is, with the extensibility of the attachments of the uterus—and will not have any relation to the size of the pelvis in ordinary cases.

Allowing the validity of the arguments used, it may be conceded that in a small pelvis the moulding of the child's head is caused by the pelvis, and that, therefore, any proportion between the size of the child's head and that of the pelvis may be brought about by the actual passage of the former through the latter, but that in the case of a pelvis with ample room the amount of moulding is dependent on causes other than the size of the pelvis. This is confirmed by the fact that an increase of one inch in the size of the conjugate diameter of the pelvis is accompanied by an increase of about 0·2 inch in the biparietal diameter of the child

The conclusion, then, is that, except in the case of small pelves, the parallelism between the size of the child's head (and in particular of the biparietal diameter) and the conjugate diameter of the mother's pelvis is the result of natural growth and is not a pressure phenomenon. The facts here recorded appear to point definitely to the conclusion that the weight of the child, and therefore the size, at birth bear a definite relationship to the size of the mother's pelvis and that this relationship is carried so far that the biparietal diameter of the child increases correspondingly with the conjugate diameter of the pelvis through which it will ordinarily pass at birth.

This may be summed up in the form of a law stated thus: "*The child grows in utero in such a manner and at such a rate that at full term his size is proportional to that of the mother's pelvis through which he has to pass in order to be born.*"

This hereditary influence appears to have a far greater share in determining the size of the child than any of the causes commonly recognised and mentioned in detail above. The mechanism by which this law is maintained is "natural selection" or the survival of the fittest. For as variations in the size of the child have arisen only those which have been beneficial will have been permitted to persist. In the case of a pelvis too small for the child the dangers threatening the life of the child and mother are well recognised. It is only necessary to mention mal-presentations including transverse position of the child and impacted fœtus with obstructed labour to realise the natural method by which unfavourable variations are ruthlessly crushed out by the death of the mother, or of the child, or of both. Attention does not seem to have been directed much towards the dangers of too large a pelvis, but so far as my experience goes they are real and lie in at least two directions. The first is that of precipitate labour with increased risk of lacerations and post-partum hæmorrhage; the second is that the uterus may become retroflexed after delivery while so large that there would not have been room for this to occur in an ordinary pelvis. The result is that the discharges are retained in the large cavity of the fundus and a late sapræmia sets in. This last is not, of course, the result of the pelvis being too large for the child, but simply the effect of its being too big for the puerperal uterus. It militates against a big pelvis, but does not necessarily keep the pelvis and the child of proportional size. The dangers of too large a pelvis are not nearly so great as those of one which is too small; yet even the former variation will produce conditions less favourable to the mother and tending towards her death or sterility, so that the chances of her bearing further children are lessened, while in the latter case the propagation of the race is rendered very difficult by the frequency with which the deaths of mother and child follow. Those varieties, then, in which the child bears a proper relationship in size to that of his mother's pelvis are those which are the most beneficial and these are they which have had most chances of survival in the struggle for existence, so that this hereditary parallelism has been established in course of generations and is now handed down from mother to child.

---

[9] This is not quite correct, for the diameter which passes through the conjugate runs from a point somewhere in front of one parietal eminence to another point somewhere behind the other, but this diameter lies so close to the biparietal that for practical purposes it may be taken that the one is the measure of the other, the two being of proportional size.

It is to be noted that the application of this law of proportion receives a tacit acknowledgment in the case of the progeny of different species. It is its applicability to individuals which is new.

Puri, Orissa, India.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF POISONING BY A BELLADONNA SUPPOSITORY.

BY J. C. McWALTER, M.D. BRUX., L.R.C.S IREL., D P.H. R C.P.S. IREL.

PATIENTS, I notice, are prone to think that all suppositories must be pretty much the same and that they are all alike used for an aperient effect. I had prescribed on several occasions small glycerine suppositories for an infant, aged four months, and belladonna suppositories for her mother who suffered from hæmorrhoids. One night the mother desired to administer a suppository to the child, and as she had none of the glycerine ones and being of an economical turn of mind she decided on utilising one of the belladona suppositories of which she had several. As a result I was sent for about an hour afterwards, the mother stating that she feared the child was dead. The infant lay in an immovable dorsal posture with the eyes widely dilated; the skin was dry, the tongue was almost immobile, the breathing was nearly imperceptible, and all the usual classical symptoms of belladonna poisoning were present, although the mother declared that not more than half a suppository had been given.

The interesting features of the case were the inability of the child to cry, the peculiar rigidity of the aspect, the pinkish flush of the face, and the extremely superficial character of the breathing, whilst the heart sounds appeared strong and slow. The infant recovered after treatment with hot baths, mustard blister, stimulants, and minute doses of paregoric.

Dublin.

A CASE OF DOUBLE AMPUTATION.

BY E. CLAUDE TAYLOR, M.S., M.D. LOND., F.R C.S. ENG., VISITING MEDICAL OFFICER TO THE HAMPSTEAD WORKHOUSE INFIRMARY.

A WOMAN, aged 77 years, was admitted to the Hampstead Workhouse Infirmary on Jan. 2nd, 1903, suffering from senile gangrene of both legs, which had been going on for about five months. The destructive process had laid bare all the muscles and tendons about the calves and ankles and even exposed the bone. The stench was so dreadful that the porter who admitted the case became violently sick. The poor old woman had practically not slept for weeks because of the pain As soon as arrangements were ready Mr. W. A. Mallam administered A.C.E. mixture and I amputated both limbs through the lower third of the thighs by the circular method. The arteries were stiff with calcareous matter and only the main vessels required tying. The patient was on the table about 40 minutes. She passed the night in sleep; her temperature never rose. Both stumps healed almost throughout by first intention and she is still alive and happy. A special nurse gave great care to feeding her during the first few days and to dressing the stumps with boric fomentations to insure a better circulation. I may briefly mention two other recent cases of amputation through the thigh for senile gangrene in very old women. One, that of a woman, aged 95 years, was admitted to the infirmary on Dec. 2nd, 1902, with commencing gangrene of the foot, severe pain, and pyrexia. She did excellently after the operation, the temperature never rose, she ate a hearty Christmas dinner when the time came, and was finally transferred to her own parish in Whitechapel. The other, that of a woman, aged 82 years, was admitted with defective circulation in the legs which, in spite of all our efforts, culminated, in the left foot, in gangrene. She was emaciated and in great distress because of the pain and fever, but consented to the amputation, which was performed on April 16th, 1903, and which made quite another woman of her. The wound healed excellently, the only trouble being that the vitality of the extreme edges was defective. The temperature never rose above 99 2° F. However, the stump was all sound on May 7th when the patient was apparently seized with cerebral thrombosis and died comatose in a few hours. In 1898, at the same infirmary, I amputated through the thigh in a woman, aged 88 years, bed-ridden, and with joints ankylosed by chronic arthritis. She did well and lived to be 90 years of age. In none of these four cases did I give any alcohol. I am inclined to think that amputation cases do better when alcohol is not administered. Perhaps I may refer to a case of triple amputation, which was my first case of amputation, when I assisted the surgeon of a hospital and another house surgeon and we each simultaneously removed a limb in a young man for gangrene due to frost-bite. He recovered. In his case alcohol was lavishly administered and suppuration freely took place.

Roslyn-hill, Hampstead.

A Mirror
OF
HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

LEEDS GENERAL INFIRMARY.

A CASE OF STRANGULATED HERNIA ASSOCIATED WITH ACUTE HÆMORRHAGIC PANCREATITIS.

(Under the care of Mr. W. H. BROWN.)

FOR the following notes we are indebted to Dr. Sydney Platts, house surgeon.

The patient, a man aged 60 years, was admitted to the Leeds General Infirmary on August 2nd, 1903 He had had no illness of any kind up to the day before admission when he was seized with sudden pain in the lower part of the abdomen—i e., between the umbilicus and the pubes; the pain was intense and he vomited two or three times during the night; he had no action of the bowels nor did any flatus pass. On admission the abdomen was generally distended and very tender; the pulse was 100 and rising, and the respirations were 34. The scrotum contained a large double hydrocele and in addition on the right side was an irreducible inguinal hernia the examination of which produced great pain. Shortly after admission the patient vomited about eight ounces of fluid, dark brown in colour and distinctly fæcal in odour. Under ether the hernial sac was opened and was found to contain a loop of small intestine, deeply congested but not gangrenous. The bowel was easily returned and the ring was closed with silk sutures. The patient lived for 24 hours; the vomiting recurred at intervals, the vomited material becoming darker, and just before death it contained altered blood. On post-mortem examination the following conditions were found. The scrotum contained a double hydrocele. On the right side was an old hernial sac which was empty; the inguinal canal was closed by silk suture. The lungs were much congested and the heart was normal. As regards the pancreas the head was very dark in colour and very friable; on the upper surface was a greyish slough of about the size of a walnut. The lesser peritoneal sac was filled with a thick curdy fluid resembling pus; the foramen of Winslow was closed. There were numerous patches of fat necrosis scattered over the omentum and the mesentery, the gall-bladder was full of small calculi, and the spleen substance was very soft.

Remarks by Mr. BROWN.—I observed at the time of operation that the patient seemed to be far more ill than was accounted for by his physical signs, unless, indeed, we found the bowel to be gangrenous. This not being the case I was convinced that some intraperitoneal catastrophe had taken place, the nature of which I could not surmise, and the patient's condition did not warrant any exploratory incision. With the cause of death as revealed by the necropsy I do not see that draining the lesser sac could have been of any avail in this case as fat necroses were present scattered over a very wide area. Whilst it may be possible to diagnose pancreatitis in a given case watched for days it does not seem reasonable even to suggest its presence in such an acute attack as the one just related, more especially when associated with an irreducible hernia. That it is possible for a fatal inflammation of the pancreas to run its course in 48 hours without previous warning of any kind is a somewhat disquieting fact. To have such an attack ushered in with the all too familiar "sudden pain in the body and vomiting" as the sole guide is unsatisfactory. We know that scores of cases begin in this way and clear up without further trouble; then comes one, like the present, which begins and ends fatally before time has permitted a diagnosis to be made. The pancreas pathological, to judge from the present case, is as malignant in its attack as the vermiform appendix.

GOVERNMENT CIVIL HOSPITAL, HONG-KONG.

A CASE OF RUPTURED SPLEEN; OPERATION; RECOVERY.

(Under the care of Mr. J. BELL.)

A CHINESE male adult was admitted to the Government Civil Hospital, Hong-Kong, on April 30th, 1903, having been knocked about in a fight. His pulse was small and thready and he complained of great pain all over the abdomen. There was dulness in both flanks. His dying depositions were taken as quickly as possible and the operation was rapidly performed. The abdominal cavity was full of blood and the spleen was ruptured on the inner surface. The pedicle was ligatured and the spleen was removed. No attempt was made to clear out the blood but the intestines were moved to one side and a pint of saline fluid was poured into both flanks and the incision was closed. The patient was much collapsed and for the next few hours was kept going with rectal injections of saline solution and hypodermic injections of strychnine and camphor. The wound healed well but on the sixth day the temperature rose to 101·2° F.; a blood slide, however, showed crescents and malignant parasites and on the administration of quinine it subsided in 24 hours. He was discharged well on May 28th.

Remarks by Mr. BELL.—The spleen was about two and a half times the normal size. According to the separate statements of the patient and the witnesses the accident occurred 28 hours previously to admission, but evidently if this were so only the capsule was torn and the further tear of spleen tissue occurred later. This is an operation in which everything must be sacrificed to speed. The rise of temperature due to malaria was interesting. I am much indebted to Sister Dewar and Sister Gorham who, in the unavoidable absence of the medical officers at the first part of the operation, rendered most valuable aid.

Reviews and Notices of Books.

Natural and Artificial Sewage Treatment. By Lieutenant-Colonel ALFRED S. JONES, V.C., Assoc. M. Inst. C.E., Fellow and Member of Council of the Sanitary Institute, &c.; and H. ALFRED ROECHLING, M. Inst. C.E., Fellow of the Sanitary Institute, &c. London: E. and F. N. Spon, Limited. New York: Spon and Chamberlain. 1902 Pp. 96.

THE first part of this book, which is written by Lieutenant-Colonel A. S. Jones, V.C., is quite a valuable contribution to sanitary science and its publication is most opportune. By far the most instructive part of the work is that on the Camp Farm, Aldershot. The history of this sewage farm, which is, as far as we know, now given for the first time by Colonel Jones, is briefly as follows. When the camp was first formed (soon after the Crimea war) a civilian, James Blackburn, was employed by the War Office to deal with the sewage which was conducted to a sandy area of about 100 acres. The arrangements made were so good that no nuisance was caused and by the year 1879 the rye grass grown on previously barren soil was of considerable value. The produce was sold to a keeper of cows who made an offer to the War Office to take the farm on lease. At the expiration of 15 years from this time a different state of things existed. The drains had in the meantime been neglected and some of the sewage had been conducted beyond the Government area where it caused such a nuisance that Dr. E. C. Seaton, medical officer of health of Surrey, and ultimately the Thames Conservancy Board attacked the War Office in the matter. Colonel Jones was called upon by Mr. (now Sir) Henry Campbell-Bannerman to report on the question, and ultimately he undertook the duty of supervising the farm and the result may be given in the words of Sir Redvers Buller who, it may be said, is no mean authority on matters agricultural and who was well aquainted with the Aldershot sewage farm. In a letter to Colonel Jones he bears witness to the fact that under his management "putrid sewage bogs have been turned into fertile fields," and he infers, and rightly infers, that the forces of nature can effect the work of sewage purification "without the assistance of expensive patents or artificial devices." This is the experience of an observant unscientific layman. What these "forces of nature" may be is perhaps not within his knowledge. An investigation of their nature and of their work has for years occupied the attention of some of the medical officers of the Local Government Board. On the other hand, as Colonel Jones points out, engineers, chemists, bacteriologists, and inventors of systems have in the interests of their trades raised clouds of dust through which it is difficult for ratepayers and district councillors to find their way to the best practical and available means of sewage disposal. This little book should be studied by all members of sanitary authorities who will find a great deal of practical instruction not only in the contributions of Colonel Jones but also in Mr. H. A. Roechling's chapter on Natural and Artificial Sewage Treatment.

A System of Practical Therapeutics. Edited by HOBART AMORY HARE, M.D. Second edition, in three volumes (Vol. I., pp. 856; Vol. II., pp. 926; Vol. III., pp. 841.) London: Williams and Norgate. 1902 Price £3 3s.

THIS is the second edition of a system of treatment published some years ago. The work has now been thoroughly revised and largely rewritten, so as to be completely abreast with the latest advances in medical therapeutics. Among its contributors are some of the best British as well as American medical authorities, and every endeavour has been made to adapt it to the needs of the profession in this country as well as in America. Thus in the articles on Climate and Mineral Waters due reference is made to the various European health resorts and mineral springs as well as to those of the American continent. It is impossible to deal with such a large work in any detail, but reference may be made to a few of the articles which appear to be of special interest or importance.

The first volume is largely devoted to articles on general therapeutic measures, such as Sanitation, Nutrition and Foods, Exercise, the Rest Cure, Electro-therapeutics, Hydrotherapy, Climate, Mineral Waters, Massage and Swedish Movements, and Disinfection. All these articles form interesting reading. They are thoroughly sound in the principles enunciated and they abound in details of great practical utility. The treatment of the most important diseases is to be found in the second volume. The article on Typhoid Fever is written by the editor, Dr. H. A. Hare, and is very suggestive and instructive. He deals with the question of hydrotherapy at great length. While a staunch adherent of the hydropathic treatment in some form, he points out that statistics do not indicate such a reduction in mortality by the Brand treatment as is maintained in some quarters Taking the ordinary average mortality of typhoid fever as about 15 per cent., it has been claimed for the cold bath that it is able to reduce this to 7 or 8 per cent., but Dr. Hare shows that good nursing and careful treatment are accountable for a reduction to 10 per cent., leaving a balance of only about 2·5 per cent. to the credit of hydrotherapy. Statistics show, further, that under the cold bath treatment the attack is probably prolonged, relapses and hæmorrhages are more frequent, cases of albuminuria are increased, and the frequency of perforation is not reduced. Dr. Hare strongly deprecates the universal employment of the cold bath and prefers sponging or rubbing with ice.

The article on Rheumatic Fever is contributed by Dr. F. A. Packard and that on Diseases of the Heart by Dr. W. H. Thomson, and it is interesting to note that they are entirely at variance in their opinions as to the efficacy of alkalies and salicylates in acute rheumatism and the influence of these drugs on cardiac complications. Dr. Packard takes the view that the treatment with alkalies, based as it was on a wrong hypothesis, has proved of no more utility than the exhibition of mint water or any other equally harmless drug; on the other hand, he believes in the almost specific effect of salicylates on the course of the disease, tending not only to diminish the duration and intensity of the disease but also to hinder cardiac complications Dr. Thomson, on the contrary, does not credit salicylates with the power to do more than to reduce the arthritis but holds them responsible for an increase in endocardial and pericardial affections. In regard to alkalies he says: "That a full, and not a partial, recourse to alkalies will render carditis in any form uncommon in all patients, except children, with acute rheumatism I believe as implicitly as Fuller himself." In dealing with the treatment of pericarditis he says: "In rheumatic cases the alkaline treatment should be persevered with but all salicylates stopped."

The third volume is chiefly surgical and is devoted to such surgical treatment as comes within the province of the general practitioner. A very good article is contributed by Dr. G. F. Fowler on Appendicitis in which the much-vexed question of operative interference is carefully and fully discussed.

Although it cannot be said that all the articles are of equal value these three volumes contain a large amount of valuable information and sound advice and should prove of considerable service as a practical work of reference for the general practitioner.

Doença do Somno. Trabalhos executados até 6 de Agosto de 1902 pela Missão [illegible] Exmo Ministro da Marinha, compost[illegible] (hefe da Missão, AYRES K[illegible] junior, ANNIBAL CORREIA MENDES. Separata da *Revista Portugueza de Medicina e Cirurgia Praticas.* (*Sleeping Sickness.* Work done up to August 6th, 1902, by the Commission sent to Angola by the Minister of Marine, composed of ANNIBAL BETTENCOURT, Chairman of the Commission, AYRES KOPKE, JOSE GOMES DE REZENDE, jun., and ANNIBAL CORREIA MENDES Reprinted from the *Revista Portugueza de Medicina e Cirurgia Praticas.*) Lisboa: Officina Typographica, 7, Calcoda do Cabraz. 1902. Pp. 138 + 6 plates.

THIS is an enlarged edition of the report of the Portuguese Commission on Sleeping Sickness which was noticed at some length in THE LANCET of Sept. 27th, 1902, p. 885. In this report an account is given of 70 cases of sleeping sickness examined by the commission, in 52 of which cases necropsies were made. At the end of the report are a good map of the province of Angola and 30 admirable photographs of microscopic appearances seen in the brain and cerebro-spinal fluid of these cases. The commission came to the conclusion that warm damp localities with abundant vegetation are most suitable for the habitat of this disease and that the duration of the disease is from three to 26 months The members of the commission believe that sleeping sickness is contagious, and they were supported in this belief by the history of 15 of the cases seen by them; they state that when this disease attacks one member of a family it is common for the whole family to die from the malady. It is most interesting to note that these Portuguese investigators, whose skill with the microscope is evident from the excellence of their microscopic plates and who made frequent examinations of the cerebro-spinal fluid both during life and after death, did not in any one case find the trypanosoma described by Dr. A. Castellani which was found so often by Lieutenant-Colonel D. Bruce, R.A.M.C. It is true that this report was published before Dr. Castellani's paper appeared in THE LANCET, so that the attention of the Portuguese investigators had not been directed to the existence of this trypanosoma In an annotation which appeared in our columns (Sept. 12th, p 769) it was shown how few in number the trypanosomes were in some of the cases; it would therefore be a matter of great interest if these investigators would examine further patients to ascertain the presence or absence of these organisms in the cerebro-spinal fluid. A possible explanation is that this trypanosoma, like the filaria perstans which Sir Patrick Manson found in his cases and which the Portuguese commission found in only two out of 45 cases specially examined for filaria, is only found locally in cases of sleeping sickness, especially as trypanosoma fever is unlike sleeping sickness clinically. The Portuguese Commissioners insist that the diplo-streptococcus, as they term the micro-organism which they found in the brain and cerebro-spinal fluid, is the true cause of the disease, whereas Dr. Castellani considers the concomitant streptococcus inflammation to be secondary to the trypanosoma. They maintain that their streptococcus is a distinct variety, and Dr. Castellani has also observed in these cases a streptococcus which he holds to be a distinct variety between the streptococcus pyogenes and the streptococcus lanceolatus (Fränkel's streptococcus). As to treatment, the Portuguese observers tried mercury in different ways, salicylate of sodium, quinine, arsenic (chiefly arseniate of sodium), iodide of potassium, extract of male fern, antipyrin, dedaleira, caffeine, sparteine, ergotin, camphor, benzonaphthol, salicylate of bismuth, tannin, and laudanum without any satisfactory result. They think that experiments which they made on rabbits justify them in supposing that some prophylactic injection may be discovered eventually. In the meantime they can only recommend isolation of the patient and disinfection of his lodgings, and that the negroes should be compelled to take their meals separately and should not be overworked.

Protozoa and Disease. By J. JACKSON CLARKE, M.B. Lond., F.R.C.S. Eng. Part I. London: Baillière, Tindall, and Cox. 1903. Demy 8vo, pp. 177 + xx. With 91 illustrations. Price 7s 6d

THE appearance of Mr. Jackson Clarke's little monograph upon the pathogenetic protozoa is most opportune at the present moment when the interesting and important observations of Bruce and Castellani on the sleeping sickness of Central Africa are directing special attention to one group of these but little known parasites. That the protozoa should be but little known to the general reader is in no way surprising, for it is only within quite recent years that the importance, actual and potential, of these animal organisms to practical medicine has been realised; and, moreover, beyond the meagre descriptions of the amœba dysenteriæ and the sporozoa of malarial fevers which appear with unfailing regularity in present-day text-books of medicine, the student who is interested in the subject has hitherto had to turn from English literature and carefully to search the pages of French and German scientific journals. The first volume of Delage and Herouard's "Zoologie Concrète," it is true, gives a most lucid account of the protozoa as a class, but this work is not easily accessible to all—then, too, it was published in 1896 and much valuable material bearing on the life-history of the pathogenetic species has accumulated during the seven years that have elapsed since its appearance.

Mr. Jackson Clarke's book, therefore, is especially welcome to the readers for whom it is intended—the student, the busy physician, and the pathologist—although it must in no sense be regarded as a text-book for the biologist devoting himself to this branch of the animal kingdom. The selection of material for treatment has been most judicious, the general scheme of the book is clear and comprehensive, and the language itself is simple and impressive. The first chapter, taking as its text a few simple and easily understood types, clearly describes the composition of the cell and the general characteristics of unicellular organisms. The next seven sections deal systematically with the various groups of the protozoa, of which the sarcodina, sporozoa, coccidia, and flagellata will probably attract the largest share of attention from the medical reader. The protozoa of, to the human pathologist, less importance—e.g., the gregarinida, nesosporidia, and ciliata—are also adequately described both morphologically and from the point of view of the comparative pathologist. The accounts of the structure and life-histories of these organisms, though sufficiently clear and graphic in themselves, gain considerably from the lavish way in which they are illustrated. Some of the illustrations, it is true, are somewhat familiar, whilst others are obviously adaptations, but most of them are new to us and, although often schematic and diagrammatic and possessing but little artistic beauty, convey the author's meaning most forcibly; indeed, we are prepared to prophesy that some at least will be reproduced in the form of wall diagrams and employed for class demonstrations and teaching purposes generally. Another point, too, which materially increases the value of the book to such of its readers as may wish to dip more deeply into the subjects of which it treats is the inclusion, in the form of footnotes, of full references to the original papers from which the author has derived some assistance, either in the form of facts or theories.

Chapter IX., in the all too short space of three pages, opens up the interesting subject of the diseases of the protozoa themselves. This is followed by a chapter on methods, which is perhaps less complete than any of the others. We miss many old and well-tried methods, nor does the author mention Elmassian's staining process as specially applied to the trypanosomes, or the familiar Romanowsky's method as modified by Leishman for more general use. The work concludes with a short note of a somewhat controversial character on the microgamete phase in the life-history of the coccidium oviforme.

In conclusion, we wish the book every success and shall look forward with interest to the second part which will deal with the rôle alleged, but not as yet fully proved, to be played by protozoa in such diseases as syphilis and the exanthems.

LIBRARY TABLE.

The New but True Life of the Carpenter, including a New Sketch of Mahomet. By AMOS. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1903. Pp. 336. Price 4*s.* 6*d.* net.—The author calls his book an "unpretending volume." It is rather "effectively," or to be candid loudly, got up with a gold cross, a red crescent, and five golden stars on the cover. The book professes to be a "humble protest" against the dire progress of rationalism. However humble the author may consider himself it appears to us to partake rather of the nature of boldness to rewrite and to "improve upon" the story of the Gospel in the language of the modern interviewer—as, for example: "Have you heard the news?" "What news?" "Why, that priest Zacharias," &c.; or, again, following the Benedictus: "I copied it out, a glorious prophecy; hundreds of copies are being circulated. Expectation is at its height," and so forth.

Index Médical des Principales Stations Thermales et Climatiques de France. Paris: Gainche. 1903 Pp. 398.—A very useful little book on the health resorts and spas of France has lately been published. It is intended for the use of medical men and is produced under the auspices of the Syndicat Général des Médecins des Stations Balnéaires et Sanitaires de France. In the short introduction which precedes the index attention is naturally called to the wealth of France in regard to mineral waters which have, in fact, been much neglected in favour of those of Germany. The book itself is a short one, occupying less than 300 pages, yet it is very complete. The information given is concise and useful; it comprises usually a brief history of the spa, the physical and chemical characteristics of the water, the method in which it is used, and its action or reputed physiological action on nutrition, digestion, respiration, the circulation of the blood, the nervous system, and the skin. The therapeutical indications and contra-indications for its use are then mentioned. A very useful feature in the work is the description which is given in each case of the chief points of interest in the town or village in which the spa is situated. For example, to take a case at hazard, La Bourboule, we are told, is in the canton of Rochefort and contains 1200 inhabitants; its distance from Paris is given together with the route and the cost of the railway fare and the time occupied by the journey. The number of postal deliveries is stated and also the fact that there are telegraph and telephone stations. The altitude of the town and the orientation of the valley are mentioned. There is a brief note on the climate and the traveller is candidly warned to provide himself with warm as well as with light clothing. There is also an account of the geology of the place. The hotel prices are indicated and the possible amusements are enumerated. Finally, there is the statement that the bathing establishments are of three classes, the treatment being the same in each case, and there is a list of the medical men. From what has been said it will be seen that the "Index" gives exactly the kind of information which is likely to be useful and which, so far as we are aware, cannot be found elsewhere in any single book, including the "Encyclopædia Britannica." The guide has the advantages that it is not in any way a puff, that it is without illustrations such as sometimes tend to deceive, and that it contains a good map in which are clearly marked all the places mentioned in the book.

SEWAGE DISPOSAL AT BUDLEIGH SALTERTON.—At the meeting of the Budleigh Salterton (Devon) urban district council held on Sept. 16th letters were read from two visitors making strong complaints as to the presence of crude sewage along the beach and of the great annoyance caused in consequence to the visitors and others who desired to bathe. A Local Government Board inquiry had already been held on the subject of the drainage and the council was in daily expectation of receiving the inspector's report.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 26, 1903.

Typhoid Fever in Armies.

WE published last week a leading article upon the occurrence of typhoid fever in armies which was mainly devoted to the consideration of Dr. H. E. LEIGH CANNEY'S well-known scheme for securing a pure water-supply. While we deprecated in that article taking Dr. CANNEY'S scheme as an all-sufficient method of combating typhoid fever in armies we need hardly say that we regard the cutting off of the sources of infection which may lurk in drinking water as a fundamentally important item in every plan for the prevention of typhoid fever. The arguments for Dr. CANNEY'S scheme will be found set out by himself in our columns,[1] while a letter which we publish from him this week defines exactly his position in the matter. Dr. CANNEY'S scheme has been subjected to considerable criticism, some officers of experience being of opinion that it is not feasible and others considering it worthy of trial. These latter are on the safer side for, of course, it is impossible to say without chance of contradiction that anything is impossible until it has been tried. For our part we do not wish to be taken as meaning to imply that the authorities at the War Office would be wasting their time if they were to give Dr. CANNEY'S scheme a trial. Any organised method that might obviate such terrible disasters as those which recently fell upon our army through fault of water-supply ought to receive a fair trial; but we hope that it will be made very clear indeed to the public that a scheme of water-carriage could only remove one source of danger and not all sources of danger from the army.

It may be said that the danger of a faulty water-supply is out of all proportion greater to an army in respect of typhoid fever than any other danger can possibly be, but this is not proved. Certainly the tendency to disregard all other possible causes of the spread of typhoid fever in armies is due to an ill-judged comparison of the camp with the urban district. A large mass of evidence as to the cause and spread of typhoid fever in armies has recently been published by the Government of the United States of America in a report on the epidemics which devastated the volunteer camps of the United States army in 1898. This report, which embodied the findings of a commission specially appointed for the purpose, expressed the opinion that in many epidemics infected water was not an important factor in the spread of typhoid fever and that there was much to indicate the effect of direct personal infection, as well as of infection through soil, clothing, bedding, and tents The facts of the various epidemics were exhaustively inquired into and were very lucidly set forth by the Commissioners, and in the face of such evidence it is quite clear that to recommend any method of sterilising water as a panacea for typhoid fever in the army is wrong. We are not saying that Dr. CANNEY has taken this line, but less informed members of the public are prepared to do so, with the chances of grave disappointment. The work that was done at Netley by Lieutenant-Colonel R. H. FIRTH and Major W. H. HORROCKS showed once and for all the fallacy of attributing the spread of typhoid fever in armies to an infected water-supply alone. Dr. CANNEY'S method of supplying a sterilised water to the army in the field, if it be practicable, should certainly play a part in any comprehensive scheme, but it can only play a part. What is required is a carefully worked out strategical plan directed to the prevention of typhoid fever in the army both in war and in peace. Such a plan should be the medical counterpart of those strategical plans which it is the recognised office of a general staff to elaborate in view of military eventualities. Into an adequate plan for the reduction of the incidence and death-rate from typhoid fever in the army there would enter provision for securing the purity of the water-supply so far as the military exigencies of a campaign admit. There would enter also provision for the sterilisation or immediate and effective removal, again so far as the circumstances of war admit of this being done, of infected excreta There would enter, further, provision for the suitable choice and for the sanitary upkeep of standing camps. Lastly, there would enter the re-introduction into the army of the processes of anti-typhoid inoculation For it will have been noted in our report in THE LANCET of August 8th, p. 420, of the proceedings of the Royal College of Physicians of London on July 30th, that the efficacy of anti-typhoid inoculation has been vindicated by the judgment pronounced by a committee of inquiry appointed by the College in response to a reference emanating from the Secretary of State for War. The report was to the effect that not only was a lessened susceptibility to the disease brought about as a result of the inoculation, but that the case-mortality was largely reduced. We shall publish shortly two further sets of statistics dealing with anti-typhoid inoculation, the evidence of which is satisfactory.

The need for the adoption of a well-considered plan of campaign against typhoid fever in the army carries with it, in our view, a need for the creation of a committee of sanitary experts for the purpose of working out such a plan. More than a year ago we wrote that the whole subject required to be threshed out thoroughly by the Army Medical Advisory Board or by some committee specially appointed for the purpose; and the evidence recently given before the Royal Commission of Inquiry into the Preparations for the South African War makes us certain that a carefully constituted committee is required. The Advisory Board, as at present composed, is incapable of undertaking or superintending the bacteriological work, to say nothing of the tests in the field at home and abroad, which would be required in order to decide on the comparative merits of the various details of an anti typhoid crusade. A medical officer thoroughly skilled in hygiene has a seat on this board, but he cannot be expected to sway the counsels of the board. If the country is in earnest in its desire to prevent the possibility of a recurrence of such a catastrophe as occurred at Bloemfontein, if we are to prevent the continual wastage of men and money which is caused by the prevalence of typhoid fever in our army abroad, there should be appointed a standing committee consisting of scientific workers, preferably of army medical officers properly trained in bacteriology. The committee might appropriately include, as *ex-officio* members, the professors of hygiene and pathology in the Army Medical College, with the double view of obtaining scientific assistance from them and of keeping the officers of the Royal Army Medical Corps in touch with the progress of the work of the sanitary committee. Lastly, the sanitary committee might, as is the case in other War Office committees, be reinforced from outside by eminent civilian sanitarians. And above all the committee ought to be constituted not merely as a committee of reference but as a committee upon which would devolve the working out of the main scientific problems which are urgently awaiting solution in connexion with the prevention of disease in the army. Constituted on the lines indicated above the sanitary committee would be in a measure analogous to the Intelligence Department, to the Ordnance Committee, to the Explosives Committee, and to the Military Telegraphs Committee as already in existence at the War Office.

---

[1] THE LANCET, Dec. 27th, 1902, p. 1742.

◆

The Geography of Disease.

SINCE the issue of the last edition of HIRSCH'S monumental work upon "Geographical and Historical Pathology" very material strides have been made in our knowledge as to the geographical distribution of disease. This advance may be accounted for partly by the great developments within recent years of tropical epidemiology and pathology, especially as regards our knowledge of the important part played by animal parasites in causing disease; and partly by the enormous facilities for intercourse with all peoples of the world which have been afforded by the recent expansions of commerce. It is now becoming increasingly recognised that many of the fields of commercial enterprise remaining to be conquered are fields into which at the present time the white man can penetrate only at great risk to his health and life. This point was accentuated recently at Liverpool by Sir ALFRED JONES in a speech in which he admitted that commerce was more indebted to science than was science to commerce; and it is possible that the same view may have accounted, at least partially, for the increasing support which the commercial worlds of London and Liverpool have accorded to the tropical schools of these two cities. Finally, as another invigorating force, we have had until a few days ago at the Colonial Office a Minister who has shown a wish to recognise a particular responsibility in the matter of epidemiology which devolves upon this country. In consideration of our world-wide empire, within one or other portion of which every known, and possibly every unknown, parasite and host has its being, the study of epidemiology is a duty which this country owes to the world and Mr. CHAMBERLAIN appears to have recognised this duty. We hope that his successor will be equally perspicuous.

In all these circumstances it has become highly desirable that our knowledge as to the geographical distribution of disease should be brought up to date. Dr. F. H. H. GUILLEMARD, the general editor of the Cambridge Geographical Series, has evidently recognised this necessity, and he has been fortunate in securing as the author of a book of the requisite scope Dr. F. G. CLEMOW who is British delegate to the Ottoman Board of Health and Secretary for Russia to the Epidemiological Society of London. Dr. CLEMOW'S writings are well known to all epidemiologists and his intimate knowledge of the Russian language has enabled him to study the disease and death records of the vast population of that great European and Asiatic country in a manner which is impossible to most writers. The book[1] is divided for purposes of classification and convenience into three parts. The first relates to General Medical and Surgical Diseases, the second to Diseases of the Skin, and the third to Animal Parasites and Diseases associated with them. The last group is happily arranged and affords some of the most instructive reading in the book. The history and geographical distribution of the pulex penetrans, as given by the author, afford an excellent illustration of the manner in which animal parasites of this nature may become diffused over the world. Throughout the work as a whole each disease is methodically considered so as to convey a clear idea not only of its geographical distribution, but also of its general character, etiology, and history. In a preface upon the Geography of Disease and the factors which determine it we find discussed in a fascinating fashion the complex nature of the problem. Dr. CLEMOW recognises that the something which we call disease consists not only of one essential cause, such as the vegetable or the animal parasite, but of a group of associated factors. It is thus clear that the distribution of any given disease and of the parasite which is one of its essential causes is in no sense always identical. It is not unlikely that the parasite capable of causing specific disease in man exists in areas at present uninhabited either by susceptible human or animal hosts, and in this sense the distribution of any given disease may be greater potentially than actually. When susceptible men or animals migrate to the areas inhabited by the parasite the actual area of distribution of the disease will expand. Conversely, as, for instance, in filariasis, the distribution of the disease may for a time be more extensive than the distribution of the parasite which is its essential cause. Malaria and perhaps trypanosomiasis may be regarded as other illustrations of this group.

Dr. CLEMOW speculates freely as to the explanation of the systoles and diastoles of epidemic diseases—i.e., of those pandemic excursions which certain diseases indulge in from time to time when they break forth from their endemic centres. He points out that, if the general behaviour of these diseases presents an analogy with that of insects, it is only an analogy. The resemblance, it is true, is often very striking. "Some insects," he says, "like some diseases, have permanent breeding grounds in special and relatively limited areas. They may change their breeding grounds. They migrate in certain years to other areas, they fly in swarms or in small numbers, they take long flights over thousands of miles and appear in countries where they were before unknown, they disappear almost as suddenly as they came, or they break up into patches, remain more or less permanently in the newly-invaded territory, or gradually die out. In all these respects their behaviour shows complete analogy with the behaviour of such diseases as cholera or plague, influenza or dengue." This is a suggestive passage and well illustrates the philosophic manner in which the author is prepared to regard his subject matter. We have said enough to show that in our opinion this is a book to be studied by all those claiming to be epidemiologists. And it is to be hoped that medical men in India and our colonies who read it will be stimulated to carry on the work which has been ably begun. It is impossible not to recognise how eminently incomplete our records remain of disease in many parts of the world, and these gaps in our knowledge can only be supplied by active local workers. The geography of disease is now admitted by astute statesmen and leading merchants to be a field of knowledge in which valuable national work can be done. We hope that the modern conditions which have led to this feeling among men of political and commercial training will appeal to our readers also, and that in far-off lands the causes and symptoms of disease will be carefully noted and charted for the benefit of humanity.

---

[1] *The Geography of Disease.* *By F. G. Clemow,* M.D. Edin., D.P.H. Camb. Cambridge Geographical Series. London: C. J. Clay and Sons. Crown 8vo, cloth. Pp. xiv. + 624 and 12 Maps and Charts. Price 15*s.*

◆

Rupture of the Spleen.

THE spleen is one of the most friable of the abdominal viscera and all forms of external violence are prone to produce laceration of its substance. Falls are, as would be expected, especially likely to cause this lesion and the falls need not be from any great height. In one case a man fell about seven feet on to his left side on an iron girder and an extensive rupture of the spleen was produced, while PELLEREAUX has described a laceration of the spleen resulting from a mere down-slip while walking in the street. A blow from a cricket-ball has also sufficed to cause this injury in a boy, ten years old, though the ball was thrown by a boy of the same age. A fairly common cause is the passing of the wheel of a cart across the abdomen, though this catastrophe is on the whole more likely to cause rupture of the liver. But if the spleen is liable to rupture in healthy persons who have suffered from no previous splenic affection, the liability is enormously enhanced if from any cause the spleen has been diseased and enlarged. Of all affections involving this organ malaria has the greatest effect in increasing its friability, so that comparatively slight blows may lead to intraperitoneal hæmorrhage from the splenic substance in a malarial subject, and thus a tap with a cane or a pat with the hand, insufficient to cause the slightest bruising of the abdominal parietes, may lead to fatal hæmorrhage from the spleen. Nay, more, there are cases of splenic rupture which have been termed "spontaneous"; in these no external violence of any kind has been employed and yet the spleen has been torn. The only explanation is that in some cases any sudden increase of the intra-abdominal pressure may be sufficient to cause the rupture. Thus Sir JAMES SIMPSON mentions a case in which during labour the spleen was ruptured. Mr. E. ATKINSON of Leeds has described one case in which severe vomiting led to the same result. Dr. R. SIDNEY STONE of Mauritius has recorded a rupture of the spleen in an Indian woman which followed a sudden effort to prevent the fall of a large vessel of water which she was carrying on her head. Dr. BARRALLIER has reported two cases in which young French sailors died from rupture of the spleen during a first and mild attack of malaria. One had returned to duty but was soon after found dead in his hammock, while the other, on attempting to get out of bed, was seized with sudden faintness and died in a few minutes. Dr. FRANCIS NICOLETTI has related a case of rupture of the spleen in a boy, 15 years of age, who had had many attacks of malaria. One day, while carrying a heavy weight, he felt a sharp pain in his left side and died in 20 minutes. In this case it was suggested that the rupture was due to excessive venous engorgement during the great exertion of carrying a heavy weight. A few cases have been recorded in which patients suffering from malaria have died from splenic hæmorrhage, although no effort of any kind appears to have been made. The medico-legal importance of this tendency of the spleen in malaria to laceration can hardly be overrated, especially in tropical climates, and a lack of appreciation of this friability has led in several instances to miscarriage of justice.

The symptoms to which laceration of the spleen gives rise are those of internal hæmorrhage, but the rapidity of the onset of the symptoms varies greatly in different cases. In some instances death appears to have resulted within five minutes, while in others days have elapsed between the onset of the symptoms and the fatal ending. In these latter cases it is probable that the rent in the capsule was at first very small and that afterwards it grew larger. The diagnosis is often not difficult; the signs of internal hæmorrhage are marked, both flanks are dull on percussion, but only the right flank becomes completely resonant on change of position. This immoveable dulness in the left flank is due to the great masses of clot which surround the torn spleen. It has been suggested that the large proportion of leucocytes in the splenic blood favours its coagulation when effused. As to the treatment of ruptured spleen when the diagnosis has been made there cannot be two opinions. Operation is indicated, and it should be commenced at once in the judgment of most surgeons, though some are inclined to wait until the patient has rallied somewhat from the state of collapse into which he has fallen from the severe hæmorrhage. Some of the collapse is doubtless due to the blow on the abdomen and injury to the sympathetic plexuses and this will tend to disappear, but the collapse due to the hæmorrhage will probably steadily increase. The best incision for removal of a ruptured spleen is in the left semilunar line, commencing at the edge of the ribs; its length must depend on the size of the spleen, but in cases where the viscus is normal in size four inches should be sufficient. Where the diagnosis is not certain a preliminary central incision is advisable, to be followed by the lateral incision when the diagnosis is established. The spleen is brought to the wound, its pedicle is securely ligatured, and the viscus is removed. No hesitation need be felt in removing a ruptured spleen. Long before the days of antiseptics the spleen which had prolapsed through a wound of the abdominal wall had been ligatured and removed, recovery ensuing. Useful as the spleen undoubtedly is in the human economy its function can be vicariously performed by other organs; the lymphatic glands and the red marrow of bone appear to carry on the duties of the ablated viscus, as has been shown by operations on dogs; and in the case of human beings it has been noticed that it is not rare after removal of the spleen for a general or extensive enlargement of lymphatic glands to occur, and sometimes pains in the long bones suggest at least that some medullary hypertrophy is taking place.

The enlarged malarial spleen may also be removed with safety in most cases, but its greater size renders the operation somewhat more formidable. In only one condition is the result of excision of the spleen uniformly unfavourable and that condition is leucocythæmia. Most patients with rupture of the spleen recover rapidly after excision, though convalescence may be retarded by a peculiar form of weakness, probably due to delay in the establishment of the vicarious functions of the lymph glands and the bone marrow. This weakness has been satisfactorily combated by means of extracts of sheep's spleen. In the present issue of THE LANCET we publish a case of ruptured spleen in a malarial subject which was successfully excised by Mr. J. BELL of Hong-Kong. We hope that the success of the case may be permanent. A fortnight ago we published a very interesting case of splenic anæmia where the patient, under the care of Dr. GEORGE PEACOCKE, in the Adelaide Hospital, Dublin, was operated upon in that institution by Mr. T. E. GORDON. Six months after the operation the patient reported himself as free from symptoms and hard at work upon a farm, but in another six months he died, the cause of death not being mentioned.

Annotations.

"Ne quid nimis."

THE FATAL ACCIDENT ON SCAFELL.

WHILE attempting a dangerous ascent upon Scafell on Monday last four young men lost their lives, this being the most terrible disaster in English mountaineering that has happened in recent times. The accident occurred within a few yards of the place where ten years ago Professor Milnes Marshall, the biologist, was killed. One of the four victims was alive when he was found and received attention from a medical man as he lay on the ground; but his injuries were too severe to permit of any hope, and he died while being conveyed to shelter. It is impossible to tell with any certainty how the accident occurred, as the sole survivor of the party was too much injured to allow him to make any definite statements to those who found him and the bodies of his three dead companions, but it is supposed that one member of the party became exhausted and that some change in the order in which they were roped preluded the disaster. The fact is often overlooked that mountain climbing is arduous work and calls for endurance, agility, and a sure eye. Difficult ascents should not be undertaken until the climber has become somewhat accustomed to the conditions under which he will be called upon to exercise his strength and skill. During the first few days of a holiday no attempt should be made to perform difficult mountaineering feats. To go straight from the consulting-room, the surgery, or the desk, with the object of climbing a mountain may, and often does, lead to accidents with a fatal termination. We know nothing of the physique or training of the four young men whose lives have been brought so sadly and suddenly to a close, but are speaking in general terms of warning. They may have been in a perfectly fit condition to attempt the object which they had in view—a difficult climb but one which had been previously performed; nevertheless it too often happens that mountain climbing in England is undertaken on the assumption that no great endurance or skill is required. This is an error. In Switzerland no one except an experienced mountaineer thinks of making the ascent of a difficult peak without engaging a guide. Guides may not be necessary in many mountainous districts in this country, but in their absence hotel-keepers and local authorities might do their best by voice and by placard to warn climbers against feats that are known to be dangerous.

THE VALUE OF SANATORIUMS.

IT is a sufficiently common experience in the arts to find that some process which rests on a thoroughly sound theoretical basis and gives admirable results on the experimental scale proves unsatisfactory when subjected to actual economic conditions. The possibility that an analogous state of affairs may exist in medicine is wont to be ignored and it appears that the provision of sanatoriums for consumptives is a case in point. At first sight the method of treating tuberculous persons in special institutions seems wholly good, and there are many who regard the erection of such buildings as a public duty devolving upon the State, but on closer examination we are compelled to ask whether the undoubted benefits which may be derived from this mode of dealing with the disease are not disproportionate to the expense incurred. At the recent International Congress of Medicine at Madrid Professor Maragliano is reported to have called attention to this matter in the following words: "We must convince ourselves that it is not by means of sanatoria that we shall be able to diminish the number of the tuberculous and defend humanity from this scourge. Popular sanatoria, institutions eminently charitable for the tuberculous poor and capable of contributing powerfully to the cure of this malady, are not able to play the decisive rôle in the social prophylaxis of tuberculosis. Considered under this aspect the sanatoria have the effect of sanitary cordons and quarantines, which were formerly thought capable of stopping the diffusion of epidemics. Science and experience have shown that the best obstacle to oppose to the invasion of infectious maladies consists in creating in the countries concerned good hygienic conditions so as to deprive morbid germs of the medium suitable for their multiplication." The whole question is discussed in the current number of *Cosmos* by M. P. Goggia who gives statistics representing the results obtained in Germany, where there are now 72 sanatoriums of a popular character through which pass annually about 30,000 persons belonging to the lower ranks of society. The average duration of the time under treatment is about three months. Of 424 patients admitted with signs of early pulmonary tuberculosis Engelmann found that at the end of six months 94·7 per cent. could work, at the end of two years 80·3 per cent., of three years 66·7 per cent., and of four years 44·4 per cent. These results can hardly be considered brilliant. Hammer of Heidelberg compares the condition of 72 patients who were three months in a sanatorium with that of 55 treated as ordinary out-patients. Of the former 35 per cent. were "cured" and of the latter 52·7 per cent. In another series of cases Engelmann notes that of patients sent from sanatoriums as fit to work 21 per cent. were still fit after four years, while of those sent out as unfit 18 per cent. were nevertheless at work four years afterwards. These figures bear out Hammer's experience that the short time which it is possible for the working classes to spend in sanatoriums has practically no direct beneficial influence upon the course of the disease from which they suffer. It is probable, however, that the sanatoriums serve a useful purpose in disseminating hygienic principles, though less expensive machinery could be made to effect this result equally well. Persons furnished with sufficient means to enable them to enjoy sanatorium treatment, not for three months, but for as long as seems desirable, are likely to derive nothing but good from such a procedure, but the attempt to combat the ravages of the tubercle bacillus among the rank and file of the population by means of State-aided hospitals pursuing the open-air method is probably doomed to failure from sheer inability of our national resources to stand the strain thereby thrown upon them.

A SYRIAC TRANSLATION OF THE APHORISMS OF HIPPOCRATES.

M. POGNON, the French consul at Aleppo, is publishing at Henrich's of Leipsic the text and a translation of a Syriac version discovered by him of the "Aphorisms" of Hippocrates. The manuscript is of the thirteenth century. M. Pognon in his introduction gives adequate reasons for thinking that the original Syriac text, of which this manuscript is a descendant, was translated from the Greek before the rise of Islam and therefore it merits very high consideration as a companion to the Greek version of Hippocrates's work. He even suggests that its translator can be assigned in the person of the famous surgeon Sergius, who died at Constantinople about A.D. 536, and who, Bar Hebræus, a Syriac bibliographer, tells us, was the first to translate medical and philosophical Greek authors into Syriac. The high value set upon the "Aphorisms" by Greek, Roman, and mediæval medical men and authors is well known. In 1595 Foesius, in his work upon Hippocrates, enumerates 137 commentaries upon it. The Arabs esteemed it among the most important of all the great classic books and carefully translated it. Now, thanks to M. Pognon, we have ocular testimony to the same high appreciation of it by the many peoples of Western Asia who in the earlier centuries of our era, before the Mahomedan Arabic conquests, spoke Syriac.

THE DRINKING OF METHYLATED SPIRIT IN ABERDEEN.

Dr. Matthew Hay in his annual report for 1902 draws attention to the growing use in Aberdeen of methylated spirit as an intoxicant. It is not, perhaps, generally known that with a view to enable persons engaged in certain industries to obtain an alcoholic spirit for industrial purposes at a relatively small cost the Government authorised the addition to methylated spirit of a small proportion of petroleum oil (3 to 800) the mixture thus produced being practically free from the duty imposed upon ordinary spirits of wine. It was thought that if the spirit was thus rendered nauseous no one would be tempted to use it as an intoxicant. But in Dr. Hay's experiences this addition has failed in its object and he thinks that the poorer and more degraded class of drinkers in Aberdeen are using the altered spirit as an intoxicant in an increasing degree. According to Dr. Hay the only practical restriction upon the sale of methylated spirit is that it cannot be sold on Sundays, and he finds that the traffic in it is mainly in halfpenny- and penny-worths, as much being procurable for a penny as would be equivalent to two glasses of whisky. As an indication of the extent to which the trade in methylated spirit is carried on it may be mentioned that as many as 70 men have been seen to enter a certain grocer's shop in the east-end of Aberdeen in less than two hours. Each is provided with a bottle and, having procured the needed spirit, proceeds to a neighbouring water-tap to dilute the spirit before drinking it. Consumption of the spirit in this form seems to produce a condition of stupor akin to that caused by opium, and Dr. Hay states that in some cases seen by him the stupor was so great that no conscious response could be induced. Methylated spirit tends rapidly to degenerate the drinker morally and physically, much more so than is the case under the excessive use of ordinary spirits. The cheapness of the liquid is such that almost anyone, however low in the scale of poverty, can succeed in satisfying his cravings, and although the drinkers of methylated spirit would prefer alcohol in its usual form they are too poor to be able to obtain their fill of alcohol in the shape of wine, whisky, or beer. The progress of methylated-spirit drinking in Aberdeen is apparently such that the Labourers' Federation is becoming alarmed at the evils resulting from the practice and, as Dr. Hay observes, it would be well that the attention of the Inland Revenue Department should be called to the practice in order that greater restrictions should be imposed upon the sale of this form of spirit either by means of more nauseous sophistication or greater control of sale. It might, too, be well to draw the attention of the central health department to the subject since the Revenue has but little concern with public health or morals.

A TERRIBLE DOWNFALL.

A SAD story was related at Plymouth police-court on Sept 16th when Robert Fawcitt Granger, L R.C.P., L R C.S. Edin , late of Whitby, was charged, together with his wife, with gross neglect of their three children. Evidence of the insufficiency of food supplied to the children was given, while the dirty condition of their home and sleeping arrangements was also testified to. Two medical men described the grievous physical ills that had been caused by the unnatural behaviour of the parents. The chairman of the bench of magistrates said that the bench had had a very painful experience in listening to the evidence but that they had come to the conclusion that the charge against the two defendants was amply proved. It was quite clear that the defendants had possessed means which enabled them to procure drink and it was also quite clear that drink was the deplorable cause of the male defendant's downfall. A fine in such circumstances as had been put before the bench would not, it was felt, meet the case. We regret to be forced to indorse the severe view taken of Mr. Granger's conduct and that of his wife. They were liable to imprisonment for six months, but they were sentenced only to two months' imprisonment each, to be carried out in the second division, a decision which can only be regarded as lenient, even when the severe moral nature of the punishment is taken into account. We have no doubt, as was suggested for the defence, that there were mitigating circumstances and full allowance seems to have been made for them by the bench. It may have been, and probably was, the result of overwork or mental strain of some sort that caused Mr. Granger to take a false refuge in intoxicating liquors. The labours of the general practitioner are very exacting and a certain number, but only a very small proportion considering the exhausting nature of their duties, do succumb to alcoholic temptation. But when a medical man falls in this way he falls terribly far. He is so accustomed to being respected for his skill and integrity by his patients that when he realises that his professional position is slipping from him he feels keenly the importance of the status which he is losing. To some this feeling brings a timely warning, to others it brings only a despairing idea that it is now too late to retrieve. A change of district is made for one reason or another. The unfortunate man cannot bear that old friends who respected him should now feel constrained to pass him by; and he hopes that in a new neighbourhood he may bury the past and regain his self-respect. Sometimes this is the fortunate issue, but much depends on what employment he finds. If he accepts an appointment from a medical aid association, particularly if the appointment is one that has been declined by his professional brethren, and the association is one that is managed upon the lines which we have so often had to deprecate in these columns, there is not much hope for him. Anything that tends to further loss of his self-respect will help him on the downward path. Now the medical officers of certain medical aid societies are not asked to retain their self-respect; they are not expected to have any strong feeling for their professional position. What is wanted by the managers of some of these institutions is a servant to do the work cheaply. There is little hope of the medical man who has already made a bad start in life regaining his forfeited ground if he takes an appointment under such a medical aid association.

THE WILLIAM CADGE MEMORIAL.

Dr. Michael Beverley, treasurer of the fund that is being raised in memory of the late Mr. William Cadge, informs us that it has now been decided to erect a permanent memorial in the cathedral of Norwich where the famous surgeon's life was spent. Subscriptions, which are limited to one guinea and confined to the medical profession, should be sent to Dr. Beverley, Norwich, and among the subscriptions which have been already received are those of Lord Lister, Sir Thomas Smith, Bart., Sir Hugh R. Beevor, Bart., Sir Alfred Cooper, Sir Peter Eade, Sir Frederic Bateman, Dr. Robert Barnes, Professor Howard Marsh, Mr. Reginald Harrison, Mr. A. Pearce Gould, Mr. Rickman J. Godlee, Mrs. Garrett Anderson, and Dr. C. Holman. Mr. Cadge was a great exponent of British surgery and a noble benefactor of medical charities, and having regard to his career in both capacities those who are promoting the movement for the perpetuation of his memory may well expect to receive support from our readers.

THE TREATMENT OF SEWAGE IN MANCHESTER.

ABOUT 50 members of the city council of Manchester recently inspected the sewage works at Davyhulme where the old chemical system may be seen side by side with the bacterial system, so that they can be readily compared. There is not much difference in the clearness of the effluent, but it appears that the chemically treated effluent, if allowed to remain in a closed vessel in a warm place for a few days, will go black and give off an offensive smell, while the effluent from the bacterially treated sewage will, under the same conditions, undergo no such decomposition. The Mersey and Irwell joint committee has not decided at present if it considers the effluent from the bacterially treated sewage satisfactory. It must be remembered that as yet it only passes through one set of contact beds, though the scheme when carried out will provide for two. When completed the first set of bacteria beds will be of half an acre each and will number 92. The second set will cover 46 acres. After passing through the second set of beds the effluent will, it is said, be as clear as drinking water. "It is considered doubtful, however," our Manchester correspondent writes, "if the Local Government Board will accept the scheme, for the Board has a preference for running sewage through the land. Should this be insisted on irrigation works at Carrington and at Flixton, covering 100 acres, will be brought into use. The works at Davyhulme were originally designed for treatment by chemical precipitation. The precipitation tanks were 11 in number and of these six are now used as septic tanks. The works now being carried out will comprise five additional tanks, with contingent works similar to the existing precipitation tanks, 46 acres of first-contact bacteria beds, and 26 acres of storm-water filter beds, all at Davyhulme; a conduit for the conveyance of first-contact effluent from Davyhulme to beds and lands at Flixton, and 46 acres of second-contact bacteria beds at Flixton. The scheme has been designed to deal with 126,000,000 gallons in 24 hours, the flow up to 63,000,000 gallons being treated on the bacteria beds. The remainder will be dealt with on the 26 acres of storm-water filter beds which are to be provided."

THE HARBEN LECTURES FOR 1903.

THESE lectures, under the auspices of the Royal Institution of Public Health, will be given in King's College, London, by Professor Ferdinand Hueppe of Prague, on Oct. 8th, 12th, and 15th, at 5 P.M. each day. The subjects for the respective days are (1) the Etiology of Infectious Diseases from the Standpoint of Natural Science; (2) Hygienic Lessons to be derived from the Serum Treatment; and (3) Tuberculosis. With regard to tuberculosis the medical profession will be particularly anxious to hear Professor Hueppe's views which have already been outlined in our columns.[1] Professor Hueppe considers that Professor Koch's attitude with regard to the non-transmissibility of infection from cattle to man is in direct opposition to the professor's own previous teaching, and he has pointed out that if Professor Koch is correct the measures hitherto taken against bovine tuberculosis must be, in the first place, too severe and, in the second place, of no avail for the suppression of human tuberculosis. Professor Hueppe has made personal investigations, with results which oppose those of Professor Koch, and we hope that he will give medical men in this country an opportunity of judging his work in this direction.

FEVER AND CONVULSIONS DUE TO ASCARIDES.

THE fact that round worms may produce fever does not appear to be recognised by British writers, yet it is well known to French clinicians who have described a condition resembling typhoid fever. "Lumbricose à forme typhoïde" is the subject of an article in the *Semaine Médicale* of Nov. 27th, 1895, by Dr. Chauffard.[2] In *La Polyclinique* of June 1st Dr. Wettendorff has published four cases showing that serious symptoms may be produced by the ascaris lumbricoides. In the first case a girl, aged 12 years, was seen on Feb. 9th. For some days she had suffered from anorexia and malaise and a rigor had occurred. There were headache, intense thirst, and a temperature of 104·3° F. For the next three days the symptoms persisted and at night she was delirious. The pulse was rapid but regular and the abdomen was slightly distended. Dr. Wettendorff hesitated in his diagnosis between the cerebral form of typhoid fever and meningitis. Three doses of one and a half grains of calomel were given. On the following day a mass of round worms of the size of the fist was passed and the symptoms disappeared. In the second case a girl, aged eight years, had a rigor and a temperature of 104°. One and a half grains of calomel and three-quarters of a grain of santonin were given but the temperature remained elevated. On the third day calomel and santonin were again given; two ascarides were passed and the temperature abated a little, but it did not reach normal until five days after the passage of nine more ascarides. In the third case the patient was a girl, aged five years, and the temperature, as in preceding case, did not reach normal until all the ascarides (24) were passed. In the fourth case a girl, aged 11 years, was suddenly seized with epileptiform convulsions. She fell down, lost consciousness, and had tonic and clonic spasms of the arms. On the following day she was restless, refused food, and had a second epileptiform crisis. As she was constipated castor oil was given. Some round worms were expelled and the symptoms disappeared. Convulsions due to round worms are an admitted possibility by most French writers, but the existence of fever from the same cause—"fièvre vermineuse"—is denied by some. As to the pathology of these conditions the suggestion is made that they are due to toxins absorbed from the worms. Experiments have been performed on animals by injecting fluid obtained from ascarides into different parts of the body. Sometimes no effects were observed; at other times death rapidly followed. Dr. Wettendorff suggests that the parasites secrete toxins of variable virulence, which explains the fact that they may produce no symptoms whatever in some cases and severe ones in others.

---

[1] An article by Professor Hueppe entitled "Tube Human," was published in THE LANCET of August

[2] THE LANCET, Dec. 4th, 1897, p.

AUTOLYSIS IN LOBAR AND UNRESOLVED PNEUMONIA.

IN the July-August number of the *University of Pennsylvania Medical Bulletin* Dr. Simon Flexner, professor of pathology in the University of Pennsylvania, suggests that the explanation of the failure of the exudate in unresolved pneumonia to be absorbed readily might lie in an imperfection of the autolytic processes taking place in the inflamed lung. That organs protected from decomposition tend to undergo solution by a process of self-digestion was first accurately shown by Salkowsky in 1882 This process of autolysis has now been studied from many different sides and it has been found that the intracellular ferments causing autolysis form a most important and potent series of agents which come into play under both physiological and pathological conditions. There is little doubt that in many pathological conditions the leucocyte is the essential agent in bringing about absorption. The different behaviour of a caseous and croupous pneumonia, the facility with which the one and the difficulty with which the other undergoes resolution, are to be ascribed, probably in large part, to the comparative absence of leucocytes from the tuberculous process and their presence in enormous numbers in the acute inflammatory condition. Friedrich Müller first studied autolysis of the lung in croupous pneumonia and described in detail its occurrence and the chemical products, among which are lysin, leucin, tyrosin, purin bases, and phosphoric acid, of the digestive process. Dr. Flexner has found that it is in the stage of grey hepatisation that autolysis takes place quickly and perfectly, while in the stage of red hepatisation it is very imperfect—a fact that may, he thinks, be attributed to the small number of pus cells present in the latter condition, but if the lung in unresolved pneumonia is exposed to conditions favouring autolysis the process is slow and incomplete as compared with what takes place in grey hepatisation. Unresolved pneumonia is, therefore, in his opinion, an acute lobar pneumonia in which the inflammatory exudate, either because of some disproportion between the leucocytes and other constituents or other cause as yet unknown, resists autolysis, cannot be absorbed and hence undergoes organisation.

THE IMPERIAL VACCINATION LEAGUE AND THE EDUCATION OF THE PUBLIC.

WE have received from Dr. Rees Roberts, the organising secretary of the Imperial Vaccination League, a letter alleging that when the question of a grant to the league was brought before the British Medical Association at Swansea Mr. Wolstenholme made an inaccurate statement of the position whereby the league lost the support of the association. According to Mr. Wolstenholme the league "had decided that it could not recognise, or advise Parliament to accept, the general practitioner as a public vaccinator," but Dr. Roberts says that the league has passed no such resolution. Dr. Roberts points out that it is particularly unfortunate for the British Medical Association not to support the league just now, when the latter body is striving to educate the country into an intelligent appreciation of the meaning and virtues of vaccination. No one would regret more than ourselves that the work of the Imperial Vaccination League should be hampered, but at the same time proper allowance must be made for the somewhat difficult position of the general practitioner. Recent legislation has placed or appears to have placed the public vaccinators in antagonism to the general practitioners of the country in some localities, and every endeavour must be made to allay this friction where it exists. The public must not be able to quote any difference of opinion about the machinery necessary to render vaccination effective and general. For all practical purposes the members of the medical profession, led by the expert opinion of those who have studied preventive medicine, are unanimous in the view that in vaccination and revaccination we have the most valuable safeguard against the ravages of small-pox As the profession is agreed upon this essential matter all differences as to the best way to make vaccination universal and well-performed are regrettable as tending to conceal the solidarity of opinion upon the greater issue. Mr. Wolstenholme seems, doubtless unwittingly, to have done the Imperial Vaccination League an injustice which we hope that the British Medical Association may yet repair. But we think it likely that the British Medical Association did not act upon Mr. Wolstenholme's words at all, but upon the belief that the Imperial Vaccination League had a contrary view to that of the British Medical Association with regard to the position of the general practitioner.

THE Local Government Board has addressed a circular to town councils and urban district councils drawing attention to the provisions of the Housing of the Working Classes Act (1903). Sir S. B. Provis, secretary to the Board, points out that this Act gives many facilities to town and urban district councils and we hope that the circular may have the effect of stimulating these bodies to exercise their considerable powers under the various Housings Acts. The better housing of our poor is in medical eyes one of the chief necessities of the day.

DURING the week ending August 29th only 1 case of plague has been discovered in Cape Colony—namely, that of a European female at Port Elizabeth. Plague-infected rats have been found at Port Elizabeth, King William's Town, and on board a ship at East London. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Sept 18th states that for the week ending Sept. 17th there were 39 cases of plague and 28 deaths from the disease.

THE annual dinner of the past and present students of the Faculty of Medicine of University College, London, will be held at the Hotel Cecil, Victoria Embankment, on Monday, Oct. 5th, at 6.30 for 7 P.M. The chair will be taken by Dr. Walter Rigden. Further particulars can be obtained from Mr. Raymond Johnson, 11, Wimpole-street, W., or Dr. H. Batty Shaw, 7, Devonshire-street, W.

Sir William S. Church will deliver the opening lecture of the autumn session of the Post-Graduate College, West London Hospital, on Medical Education and Post-Graduate Study, at 4.30 P.M., on Tuesday, Oct. 13th. Anyone desirous of attending may have a ticket on applying to the Dean, West London Hospital, Hammersmith-road, W.

Dr. Louis Parkes has been appointed by the First Commissioner of Works consulting sanitary adviser to the Department, in succession to the late Dr. Corfield.

ANNUAL REPORT (FOR 1901) OF THE REGISTRAR-GENERAL OF ENGLAND AND WALES.

I.

Two important Blue-books have recently been issued by His Majesty's Stationery Office, both of which contain information of considerable interest to our profession. One of them, by the medical officer of the Local Government Board, we noticed in THE LANCET of Sept. 19th, p. 839. The other, which is the subject of the present article, is the sixty-fourth annual report of the Registrar-General. Although in different ways, each of these publications bears close and very definite relations to the subject of State Medicine. The first deals with the progress of public health administration throughout the country and the last supplies the means whereby that progress may be estimated and indicates by the use of statistical methods how far the various expedients sanctioned by the legislature have been effective in promoting the health and well-being of the community.

Our readers will remember that a few weeks ago the President of the Local Government Board was questioned in Parliament as to the reason for the delay which takes place in the publication of this and other important reports concerning the public health which are issued annually by his authority. The following remarks of the Registrar-General go far to explain, if they do not justify, this delay which, as regards the present year at any rate, we believe to be exceptional. "Before concluding these remarks," says Mr. Dunbar, "I wish to call attention to the fact that the statistics respecting births, deaths, and marriages in England and Wales which are presented therein, and in the accompanying letter from Dr. Tatham on the causes of death, have been compiled after a detailed analysis of the 'certified copies' of the registers which are deposited at regular intervals in this department. The process of compilation can only be commenced after these certified copies, containing in the aggregate about 1,700,000 entries in a year, have been subjected to close scrutiny and the numerous points of doubt have been cleared up by correspondence; it must further be borne in mind that a large proportion of this work can be performed only by specially trained clerks. In the present instance the revision of an enormous number of death-rates relating to the years from 1891 to 1900 has been required in accordance with the detailed results of the recent census, and an important rearrangement of the form in which the statistics of the causes of death are tabulated has also been adopted." He then goes on to explain that pending the publication of the annual reports other summaries and statistics, necessarily less elaborate and only approximately accurate, but still of great value in relation to public health, are periodically issued. First appears the "weekly return" which is prepared with all possible despatch and is made available to the public every Wednesday morning. This return consists of a detailed analysis of the causes of death in every town in England containing a population of more than 50,000 inhabitants. Next comes the "quarterly return" which relates to the entire population of the country and is issued about a month after the end of each quarter of the year. This return gives particulars of the mortality from some of the principal causes for each of the registration sub-districts of England; it also records (and this is an entirely new feature) the number of notified cases of infectious disease as returned from certain of the larger towns. This return further contains a summary of the mortality tables relating to the great towns dealt with in the weekly returns and additional tables respecting 163 other towns containing between 25,000 and 50,000 inhabitants. Niceties of statistical classification would be obviously impossible in returns made by 2000 lay registrars and compiled with the greatest possible despatch, but the general results are of considerable value to the Local Government Board and are accurate enough for immediate practical purposes. The "annual summary" follows on these publications and is issued in the early months of the year succeeding that to which it relates. It recapitulates the statistics concerning the great towns of England that are included in the weekly and quarterly returns. After briefly alluding to the decennial supplement, which is the most important publication issued from the General Register Office, treating as it does of occupational mortality in the ten years intervening between the last two censuses, Mr. Dunbar goes on to say: "Since entering on the duties of this office I have made careful inquiry as to the scope of the various statistical publications for which I have become responsible. As the result of this inquiry I am satisfied that the need for *current information as to the state of the public health* is effectively met by the series of returns above referred to I further think that although the detailed annual reports should no doubt be issued as promptly as possible it is even more important, in view of their permanent character, that none of the care hitherto exercised in compiling them should be sacrificed for the sake of early publication."

For our own part we confess that we are amongst those who think that the value of the Registrar-General's annual reports is seriously discounted by the lateness of their publication. Notwithstanding the Registrar-General's contention to the contrary, we still fail to see why, as in the present case, the issue of his report should be delayed until 21 months after the close of the year to which it relates. We are glad, however, to note that Mr. Dunbar himself recognises the desirability of earlier publication and we cannot doubt that in future he will use his influence for its accomplishment.

The annual report now under review is technically styled the sixty-fourth, but a cursory examination suffices to show that it has been almost entirely reconstructed throughout, especially as regards the tabular matter. It is obviously fitting that the opening year of a new century should have been chosen as the occasion for revising the statistical details of this important document in accordance with the requirements of modern science. We fully recognise that the modifications now introduced are decided improvements, and we think that the fact that the report has been completely remodelled would have justified the adoption of a title indicating that the present is the first of a new series—for such it is in reality.

The section of this report which has for our profession the greatest interest is naturally that which relates to mortality. That section of the Registrar-General's reports has of course always been written by the medical member of the staff and for the first 40 years it was duly authenticated by his signature. In the present report we are gratified to find that after a considerable interval the aforesaid practice has been resumed. This is indicated in the introductory remarks of Mr. Dunbar, in the course of which, after intimating that this section of the report would be contributed by Dr. Tatham, he makes graceful allusion to the services rendered to this department by our profession in the following words: "It occurs to me that the medical practitioners of this country, on whose generous coöperation the accurate compilation of vital statistics so largely depends, will in this way more readily appreciate the fact that the particulars they contribute concerning the causes of death are analysed and the results authenticated by a member of their own profession." In reviewing the changes subsequently made in the system of disease classification which was originally devised by Dr Farr, and which was eventually adopted by the Royal College of Physicians of London in the arrangement of its nomenclature, Dr. Tatham tells us that the records of at any rate the chief causes of death, according to Dr. Farr's method, are still comparable for the 60 years which have elapsed since the establishment of civil registration and may be found in the successive reports of the Registrar-General. In appreciation of the work of his distinguished predecessor he remarks that "although in consequence of recent advances in medical knowledge the etiological classification of Dr. Farr may now be regarded as somewhat out of date, nevertheless it deserves to be remembered that his efforts to impress upon medical practitioners and students the duty of searching beyond *symptoms* for the actual *causes of disease* possessed high educational value at the time—a value which nowadays is perhaps hardly appreciated. It will universally be recognised as a just tribute to the genius of Dr. Farr that the system which—commissioned to undertake the analysis of causes of death for the whole country—he devised and subsequently improved, should more than 40 years later have commended itself for adoption as the basis of their etiological classification by the highest medical authority in the land."

The modifications adopted in the statistical forms now established for the tabulation of causes of death in the General Register Office are set forth in detail in the report. We may remark, in passing, that the general arrangement of the tables was determined after consultation with the Registrars-General of Scotland and Ireland, so that the causes of death are now tabulated on a uniform principle in each division of the United Kingdom.

In revising the tabular forms for future use in the official reports Dr. Tatham has discontinued the use of the time-honoured classification of diseases under such headings as zymotic, constitutional, developmental, &c. Nevertheless, it has obviously been necessary to adopt some systematic arrangement of the half million or so of deaths that have to be recorded and commented on in each successive year. The arrangement now in use may be seen in any of the mortality tables from various causes contained in the present report. It should clearly be understood, however, that the grouping therein shown is provisional only and is adopted merely for convenience of tabulation; it must not be regarded as a scientific classification of disease.

Recent investigations have cast considerable doubt on the validity of some hitherto accepted theories concerning the nature and affinities of important morbid conditions, certain diseases formerly considered merely local being now authoritatively declared to be essentially infective in character. In all such cases the disease in question has been transferred from its original place in one group to an entirely different heading in another group, thus seriously impairing the comparability of those groups of disease the composition of which has been modified. It should be remembered, however, that what is essential in statistical tables intended for public health purposes is that they should furnish comparable details for successive years—not concerning arbitrary groups, but concerning individual diseases considered as causes of death.

Inasmuch as there is good reason to hope that in the wake of further advances in pathology corresponding improvements will follow in medical nomenclature, it is doubtful whether any stereotyped classification of diseases would permit of modifications from time to time commensurate with the needs of science. The case of the old order of "constitutional diseases" furnishes a weighty argument against adherence to the classification hitherto in vogue. This order consisted of two principal sections—"tuberculous diseases" and "malignant diseases," with a few other conditions of less importance. Tuberculosis having been necessarily removed from this order in consequence of its infective character the group has been practically destroyed, for the attempt to retain the name "constitutional" for what remained of the group—cancer, rheumatism, and diabetes being in juxtaposition therein—could have only led to confusion. Pneumonia likewise, in recognition of its infective nature, has been removed from among local disorders and inserted among those conditions to which it has greater affinities. Several other important changes are referred to in the report which we have not the space to notice in detail. But we may remark generally that the classified list of diseases hitherto in use has been replaced by a simple enumeration of individual causes of death which may be classified by inquirers according to the needs of any given investigation and the hope is reasonably expressed that any modifications which may hereafter be required in the national records of mortality will not seriously affect the comparability of facts in a series of years.

(To be continued.)

SWANSEA GENERAL HOSPITAL.—At the meeting of the committee of this institution held on Sept. 16th the house committee presented a report recommending that the number of beds in use in the hospital should be reduced from 125 to 98, as there was an unfavourable balance of £850 against the charity and the present income was only sufficient to support 98 beds. After some discussion an amendment was carried that the number of the beds should be reduced to 110.

THE ROYAL COMMISSION ON THE WAR IN SOUTH AFRICA.

SECOND NOTICE.

WE need make no apology for returning to the consideration of the findings of the Royal Commission upon the preparations for the war in South Africa. As medical journalists we are, of course, mainly concerned with the late war in its medical aspects and in its relation to the medical services and to those members of the civil profession who took part in it. We have already dealt with the chief points connected with the Army Medical Service,[1] to which the Royal Commissioners devote some nine pages of their report. But it does not seem fitting that in a matter of such great national importance, and involving questions of universal interest, our reflections should be circumscribed within purely professional limits. It should always be borne in mind that medical aid in modern warfare is of growing importance and concerns us all, and that investigations of the nature and extent of those of the Royal Commission have a wide embrace and bearing. They throw considerable light upon the mutual relationship and interdependence of different arms of the service and upon the various vicissitudes through which the medical services have passed, and incidentally they show that those services have been occasionally discredited owing to conditions and circumstances which were either altogether, or for the most part, outside and beyond their control. We have always endeavoured in the articles which have appeared in THE LANCET to deal in a broad, comprehensive, and progressive spirit with the subject of medical aid in modern war. We have striven to indicate the lines on which the foundations of what might eventually become an Imperial Medical Service could be laid, and we discern much in the report and minutes of evidence regarding the late war in South Africa in harmony with our own views as well as with those expressed in the evidence of Sir W. G. Nicholson, the Director General of the Mobilisation and Intelligence Department of the army. Some comprehensive scheme, based upon the results of our experience in the South African campaign, has still to be formulated by the War Office for the organisation and unification of all the voluntary and colonial forces of the empire for the purposes of war, and in this scheme the question of medical aid in time of war must take its due place.

In common with most people we have risen from a study of the report of the Royal Commission and of the minutes of evidence with feelings of serious surprise. In whatever direction we turn we encounter evidence of the same state of unpreparedness. It is not, of course, the first time that the Government of this country has blundered into and out of a war. While making every allowance for the fact that no one appears to have believed seriously in the imminence of war, the extent of the muddle that existed before, and long after, the outbreak of hostilities nevertheless seems incredible And it must be regretfully admitted that this state of affairs at home was accompanied and followed by evidences of much military incapacity in the field. It is humiliating to think of what must be the opinion of foreign military Powers of our methods of military administration. Despite the warnings of the Intelligence Department, which for all its [illegible] theless collected a very valuable body [illegible] n and currently [illegible] that had been [illegible] ther political or [illegible] and strenuous military, seems [illegible] attempt to realise the position. As far as our South African [illegible] a feeble instrument for war, [illegible] the conduct of the war to all the failings of those who had the conduct of the war to the shortcomings of our constitution. It must be conceded that, apart from any enervating and prejudicial influence attributable to mere party spirit or to an anti-patriotic attitude, the War Office system followed by each Government in turn is a very ineffective one. In the present instance there was no end to the writing of minutes—some of them apparently being written more as safeguards of individual reputations against future adverse criticism than purely in the public interest—but the reader of these ponderous volumes nowhere finds any evidence that there was a clearly defined organisation. The political and military heads of the army do not seem ever to have sat down together with their proper advisers and experts to consider the actual position of affairs. There was no responsible collective opinion. No attempt was made to thresh out the probable contingencies of a campaign in South Africa and to consider the adequacy or not of the existing fighting material to meet its probable needs. The nation has certainly a right to expect from its statesmen and soldiers foresight and intelligent coöperation. It is painful to read of the recriminations, divided counsels, and other evidences of ineptitude that are recorded in these volumes. And the most extraordinary thing is that every succeeding Government has had an old and long-tried model of a successful system of joint responsibility and authority before them for imitation in the Admiralty. There were also for their guidance the results of Lord Hartington's Commission of Inquiry which 13 years ago made recommendations substantially in accord with those of the present Royal Commission. Matters still remain, however, as they were, and the latest Royal Commissioners, notwithstanding all the alleged reforms recently instituted on the civil and military sides of the War Office—in which, through the instrumentality of various boards with different functions, everybody seems to be advising everybody else—have put on record that they "are not satisfied that enough is being done to place matters on a better footing in the event of another emergency." "The true lesson of the war is," in the words of the Commissioners, "that no military system will be satisfactory which does not contain powers of expansion outside the limit of the regular forces of the Crown, whatever that limit may be." It is Sir George Taubman-Goldie's conviction that the lack of such a system "in our military organisation has cost the country no less than a hundred millions sterling; that it was a principal indirect cause of the outbreak of war; that for some months it left the United Kingdom practically denuded of trained soldiers; and that it produced the most perilous international situation in which the Empire has found itself since the days of Napoleon. Only an extraordinary combination of fortunate circumstances, external and internal, saved the Empire during the early months of 1900, and there is no reason to expect a repetition of such fortune if ...... the next national emergency finds us still discussing our preparations."

---

[1] Vide THE LANCET, August 29th, 1903, p. 624.

The report of the Royal Commissioners strikes us as being, on the whole and in the circumstances of the terms of reference, an excellent report—temperate, wise, and discriminating, and quite as important from what it plainly leaves to be inferred as by what it actually says. The notes supplied by Lord Esher, Sir G. Taubman-Goldie, and Sir John Jackson add much to its value. The inquiry has been carried out without favour or bias of any kind, and the cross examination of witnesses has been conducted, in our opinion, with much ability and evidently with a view to get at all the facts. There is one subject, however, on which the Commission failed to elicit information, and this will be greatly regretted by the medical service and the profession—we learn nothing of the loss of the waterworks at Bloemfontein. It was very important that all the facts connected with this event should have been sifted and the responsibility for its occurrence settled. It was in all probability in consequence of the loss of these waterworks that enteric fever assumed such epidemic proportions in Lord Roberts's force. No preparation had been, or in the circumstances of the case probably could have been, made for such an outbreak, because all available railway transport had at that time to be utilised for the supply of food and ammunition to the troops, if they were to be saved from starvation and safeguarded from defeat. That there was a lamentable breakdown of hospital arrangements on that occasion is undeniable, but it is to be regretted that the facts were not elicited by the Commission and put on record. The deplorable outbreak of enteric fever at Bloemfontein, it will be remembered, led to severe criticism of the Army Medical Service, and it would have been useful to learn the facts and to see how far developments in that service might prevent such catastrophes in the future.

We notice that there is a general disposition, in which we cannot concur, to focus all the blame of our unpreparedness on the then Minister for War, Lord Lansdowne. All the circumstances at the time have to be borne in mind. The position was confessedly one of extreme difficulty owing to many grave political considerations which can be fairly urged in reasonable explanation of the course of action adopted by Lord Lansdowne, whose evidence should be read carefully. And a fact must in fairness be borne in mind, which seems to have been lost sight of, that the organisation for sending a force abroad had been calculated on a certain scale and that the War Office authorities had, so far as the begnning of the war was concerned, fulfilled all that had been expected of them in the circumstances, but this organisation almost necessarily broke down when four or five times the number of troops originally intended had to be sent.

The Commissioners, referring to the report of the Hospitals Commission of 1900 upon the Care and Treatment of the Sick and Wounded in the South African Campaign, state that they see no good reason for re-opening that general question. But they have nevertheless instituted some inquiry into the *personnel* and equipment of the Royal Army Medical Corps as tested in the war and have, as our readers already know from our previous notice of the report, dealt with these questions at some length. To recapitulate a few points as succinctly as possible, we may say that, as in all other departments, but more especially so in that of the medical, the existing establishment, both of officers and of orderlies, proved totally insufficient and had to be supplemented from civilian sources. As to the skill of the army surgeons and the quality of the equipment the views expressed by the witnesses were somewhat divergent, but the testimony to the personal zeal and devotion of the medical officers was practically unanimous The Commissioners say: "Our attention was called to the fact that in point of opportunities of acquiring skill the British system had long been inferior to that of some foreign countries, that, for instance, of Germany, where not only are the military hospitals much larger and better managed but where every medical man in the army can, at short intervals, apply to be admitted to the practice of civil hospitals. In Russia civilian patients are admitted into the military hospitals. ...... It would not, of course, be possible that the country should maintain in peace a medical army staff which could meet unassisted the emergency of a great war and there can be no doubt that in the event of such a war a sufficient number of civilian medical men can be obtained. But, if only with a view to our constant small expeditions, it is desirable that the officers of the Army Medical Corps should have opportunity of maintaining their professional skill at least on a level with that of the average surgeon in civilian practice." All this may now, it is hoped, be regarded as a thing of the past. The testimony of Sir Henry Brackenbury, to cite a single instance, shows that not only was there no reserve of hospital stores and medical equipment but that as regards the munitions of war generally this country was, and had for some time been, in a state of deplorable unpreparedness for war.

Now the most obvious requirement upon a declaration of war is preparedness. We should hesitate to say so obvious a thing if every line of the report of the Royal Commission did not show that this essential fact had been lost sight of in this country. If there is one thing more than another which the report has brought to light it is that the arrangements and preparations for war are not carried on in time of peace in a sufficiently systematic and business-like manner. The safety of the country and its readiness for war have not been steadily kept in view. In the matter of reserve stores, whether medical or otherwise, to take a single instance, the particular Government which happens to be in power is only too apt to shirk the financial burden of their proper upkeep. The responsibility for perfectly needful expenditure is left to succeeding administrators unless some large and unexpected demand brings the shortage to light. There is, of course, the risk of stores deteriorating or becoming obsolete, and in respect of medical, surgical, and hospital stores generally this is notably the case. To a certain extent this may excuse the reluctance to give large orders for materials but it does not excuse the omission to make arrangements under which large orders, when given, will be fulfilled with expedition. There are, as a rule, the strongest political reasons why the Government of the day should withhold its decision on such a question as war as long as possible, and should only let it be known when war has become inevitable. The consequence is that the political situation gets acute before the war preparations are complete, and for want of timely warnings all is hurry at the last. It does not seem possible for this hurry to be avoided; all the more necessary is it that previous preparations [illegible] such directions as they *can* be made *should* be mac [illegible] If we turn to the past histories of military organisation, War Office reforms, and plans for re-organising the head-quarter staff, as recorded in the evidence of those most intimately acquainted with the subject, the result is not more satisfactory than is the contemplation of an inevitable unreadiness. The division of powers and responsibility which, according to both the Hartington Commission and the Dawkins Commission, was the main source of weakness at Pall Mall, has been going on for a long time and still exists, and has become a matter which, as Lord Rosebery has said, is not a question of party but of national safety. The nation must therefore see that our military organisation is settled on some more secure base; the shifting sands of party government offer no foundation upon which to rear a structure of permanent value.

One of the first things to be determined in any given campaign is what is to be the percentage of medical strength for a force—a matter which must obviously depend upon a variety of circumstances, such as can only be properly considered at the time and in connexion with each war. In the case of South Africa the circumstances proved to be altogether exceptional and, as everyone knows, the strain on the medical service grew more intense as the war went on and the forces engaged in it were enormously increased. At the time when the first expedition went out it was never expected that more than one army corps would be necessary, and to meet the needs of this the medical strength required proved to be much in excess of what had previously been deemed proportionate. Taking the war in South Africa as a whole it is estimated that counting the medical strength of all kinds it was approximately from 3 to 4 per cent. of the total forces. The commissioners tried to elicit information from witnesses with the view of getting some idea as to what would be the proper proportion, and the military medical witnesses, speaking generally, agreed with Professor A. Ogston's estimate, based on statistics of other modern wars, that about 5 per cent. of the total strength of a force ought to be connected with the Army Medical Department

There is one fundamental difficulty in the professional training of our medical officers which has been largely overcome by an essentially military power like that of Germany. It is to make such training as far as possible of a practical character. Actual experience in the application of medical and surgical methods, such as falls to the lot of members of the medical and surgical staffs and to the resident surgeons and physicians of civil hospitals, has, it is needless to say, a value of its own compared with which other acquisitions of knowledge are of relatively insignificant importance to the individual or to the State. Medical officers should unquestionably be encouraged in making themselves acquainted with the methods of army medical administration, hygiene, and equipment of other countries, and we look forward to the time when leave will be granted to them for this purpose and for taking out special courses of instruction both in this country and on the continent. It is beyond the scope of any man to cope equally well with the art of modern surgery and with medicine, hygiene, medical statistics, and army hospital administration, but army medical officers have perforce had to fulfil the multifarious duties implied in such all-round knowledge. There is a growing tendency in the present day for young men to devote themselves to different branches of scientific knowledge, and while it is unreasonable to expect that all army medical officers can become experts upon one side or the other of their calling, and not only unreasonable but undesirable, it seems to us to be certain that in the near future there will be some specialisation of function in the service. The report of the latest Royal Commission considers that in the interest of the army all officers in the Army Medical Service should have opportunities of refreshing their professional knowledge and that anyone endowed with any special ability and aptitude in direction should have reasonable facilities for cultivating them. The Director-General should certainly have such a knowledge of his medical officers as would enable him on the outbreak of war to put his finger upon the right men to fill the right places. When all this has been done, however, and when we have a Royal Army Medical Corps of sufficient strength and quality for times of peace (in which phrase we include the times of our perpetual little wars) it will always be absolutely [illegible] largely from the civil [illegible] All the arrangements [illegible] to the regular medical and nursing services to any required extent should be made by the Government beforehand in time of peace, and we should like to learn that an immediate start has been made in this direction.

If there be one subject more than another that requires to be put upon a satisfactory basis it is that of army sanitation. The Commissioners had their attention called to this subject by several witnesses and among them by Lord Roberts, Sir Charles Warren, Professor Ogston, Surgeon-General Jameson, and Surgeon General Sir William Wilson, and on reading their evidence we are confirmed in a view that we have previously expressed. What seems to us to be wanted is the organisation of some special sanitary body or corps to form part of every future military expedition, to be composed of a directing advisory portion armed with the requisite power and authority and an executive portion to give effect to, and to carry out, the practical sanitary work required on field service. It is necessary if we are to avoid disappointment that our ideas as to what can and cannot be done should be of a sound and practical kind. Time is an essential element in any sanitary work intended to be of a preventive nature. It has to be borne in mind that in war nothing can be done for an advancing army until the enemy has been defeated and driven out of any given position, when the mischief caused by a polluted water-supply and fouled camps and sites is soon effected. It is not possible to send sanitary engineers in front of an [illegible] althy sites for camping, to dig [illegible] es. Where time plays no part [illegible] done in a leisurely and effective manner, but what the sanitary corps must be drilled to do is to make the best of the circumstances of war. That applied sanitary work so often fails to be carried out in warfare is commonly not so much due to any want of know- [illegible] having the means. [illegible] We are strongly of [illegible] should be made, [illegible] ation of sanitary experts and of officers of the medical and engineer departments of the army might be utilised for the purpose. The sooner the requisite organisation is considered and settled the better.

There are many other points in the Royal Commissioners' report connected with the Army Medical Service, but it is on turning to, and studying, the minutes of evidence that the reader will find his interest and attention most keenly aroused. Some of these minutes are a mine of curious information and others strike us as containing able and valuable military criticism. There is an amount of intellectual vigour, grasp, and earnestness about much of the evidence that is re-assuring. The reader can leave off with the feeling that, even though he has been perusing a melancholy record of official inefficiency, there is abundant ability available and ready to hand, if the nation will only devise a right method for giving it the requisite amount of freedom and fairplay.

MEDICINE AND THE LAW.

Begging-letter Impostors.

A MAN named Shepherd, educated at Cambridge and ordained a clergyman, was sentenced at the recent sessions at the Old Bailey to 12 months' hard labour for forging and uttering requests for the payment of money with intent to defraud. The attention of medical men has frequently been called in THE LANCET to the ease with which the members of the learned professions, particularly clergymen and medical men, are victimised by impostors belonging, or pretending to belong, to their own calling and to the frequency with which cases of this kind have occurred recently. Shepherd assumed for the purpose of getting money the name of a brother clergyman and by representing him to be in poverty obtained remittances. He forged the necessary indorsement to a cheque thus received and it was for this that he received the salutary sentence mentioned. His detection was caused by his applying for aid to a clergyman who happened to be acquainted with the handwriting of the gentleman personated and who accordingly made inquiries. Apparently other victims had sent sums of money without asking any question whatever. Impostors of this kind use a clergy list or a medical directory or similar book of reference, to which they can usually have access at a free library, and a letter written to the name given in the begging letter, but to the address found in the professional list of addresses, will at any rate discover whether the person seeking assistance is the man whom he pretends to be. The impostor has, of course, to have his letters addressed to him where he can. Inquiries can also be made of the authorities at schools, colleges, and hospitals where these are mentioned. Appeals of this kind where not addressed to members of the alleged profession of the mendicant are often based upon a supposed university acquaintanceship.

Blackmailing a Medical Man.

At Johannesburg on August 14th a woman named Higham pleaded guilty to the charge of attempting to extort money by threats from Mr. James Alexander Thwaits, a medical man in practice there, and was sentenced to three months' imprisonment with such hard labour as she might be able to perform within the precincts of the prison. The crime was committed with a fatuity and absolute groundlessness which almost necessarily insured its failure, but apart from this the sentence must be regarded as an extremely mild one. The prisoner bore a good character, it is true, and had apparently been left by her husband to maintain herself and five children, with whom she was desirous of leaving the country. Need of money, however, is not usually accepted as an excuse for the commission of so cruel an act as that of Mrs. Higham. With no other motive or reason than the impecuniosity referred to she communicated with Mr. Thwaits, to whom she was a total stranger, threatening to denounce him to the authorities as having performed an illegal operation at a well-known hotel at Johannesburg and as having received a large sum of money for so doing, and she demanded the sum of £200 as the price of her silence. A few days later she reduced her terms to £25, but her intended victim informed the police and thus prevented any measures to defame him which she might possibly have taken in revenge had he been merely content with a refusal to listen to her. To face the situation on such occasions and to invoke the assistance of the police is the best course to adopt, although contempt coupled with the threat of criminal proceedings is sometimes effectual in preventing further molestation and disagreeable publicity is thereby avoided. Even innocent men, however, sometimes, when faced with the possibility of a scandal affecting their good name, have been known to yield and by doing so once have delivered themselves with their hands tied into the power of a merciless robber for the rest of their lives. Towards criminals of this class in England, at all events, but scant mercy is shown, and where grounds exist for the allegation upon which the extortion is based the cruelty is regarded as all the greater, so that the penalty is rendered heavier rather than lighter thereby. Mr. Thwaits is to be congratulated upon having effectively defended himself against the dangerous attack made upon him and it is to be hoped that the punishment inflicted will be sufficient to deter others from similar attempts in the future.

Infant Mortality and Crime.

In two cases dealt with at the recent sessions at the Old Bailey Mr. Justice Ridley passed sentences of three months' hard labour upon young women in connexion with the birth of their illegitimate children. In the one instance a laundress, aged 19 years, living with her mother, had got out of bed and gone downstairs in the early morning to the backyard where she delivered herself of a child which she placed in the dustbin. She went to her work as usual and it was only the cries of the child heard much later from the dustbin which revealed its existence. In the other instance the prisoner was in domestic service and her mistress, who suspected what had occurred, made a search and found the dead body of a newly born infant concealed in a cupboard with a piece of tape tied tightly round the neck. In the first case the offence charged was one of wilfully exposing the child, and in the second case the prisoner pleaded guilty to concealment of birth. In passing sentence upon the case of concealment Mr. Justice Ridley called attention to the frequency of crimes of this class and to the necessity for punishing them, in spite of the pity which he might feel for the prisoner in the distressing circumstances in which she appeared before him. Crimes of this kind are, indeed, extremely frequent, and there can be little doubt that a substantial proportion of the mortality among infants, as well as of the cases of stillbirths, is due practically to child murder. Murder, however, is but seldom charged, partly on account of the lack of evidence necessary to convict and partly because conviction would leave the alternative of punishing homicide lightly or of treating with severity persons who often deserve, and who usually obtain, considerable sympathy. The fact, however, remains the same that if the children were desired to live by their parents they would, in the majority of cases, be safely born and reared. The remedy is yet to be found.

A Conviction under the Dentists Act.

At Bow-street police-court the British Dental Association recently obtained the conviction of a man named Flax who was summoned for using descriptions falsely implying that he was registered under the Dentists Act, 1878, and that he was specially qualified to practise dentistry. The descriptions complained of were contained in advertisements published in a German newspaper circulating in London and were also printed upon business cards. The statements made were as follows: "Ordinary extractions, 1*s.*; painless extractions by a new process, 3*s.* American crown, bridge, and bar work. Stoppings in gold and enamel. Mr. Flax, gold medallist, attends personally. French and American diplomas. Practised with success with first-class English dentists." The magistrate was informed that the gold medal referred to by the defendant was obtained at the Paris exhibition for the manufacture of artificial teeth and that it was not, as the advertisement was clearly calculated to suggest, the reward of proficiency bestowed by any institution, whether recognised or not, in respect of proficiency in dentistry. It was urged in defence that the defendant was qualified to practise in America or France, but the ease with which a diploma might be obtained in America was mentioned in reply to this. Mr. Marsham, dealing with the advertisements and the question of fact submitted for his decision as to whether these contained descriptions falsely implying qualification and registration, found that an offence had been committed and fined the defendant 40*s.* on each of the two summonses against him, with 3 guineas costs. No one could reasonably dissent from such a decision. An advertisement that a man is a "gold medallist" who has "practised with success with first-class English dentists" would naturally convey an impression of British qualifications to the ordinary patient of the class which it was intended to attract, and the defendant might have found it difficult to say for what other purpose the words in question were used.

Looking Back.

FROM

THE LANCET, *SATURDAY*, SEPT. 24, 1825.

HOUSE SURGEONS OF THE LONDON HOSPITALS.

To the Editor of THE LANCET

SIR,—Permit me to address you upon a subject loudly calling for the interference of the Governors of the London Hospitals generally, namely, the appointment of the HOUSE SURGEONS. It is notorious, that any man, however ignorant of his profession, or dull in his natural abilities, by becoming a *perpetual pupil* is considered fully competent to the arduous duties of the office in question, when it comes to his turn. Knowing the importance and responsibility of the situation, and at the same time being aware of the many instances of gross ignorance and neglect that are constantly occurring in the Metropolitan Hospitals, (for I except none of them); are they not (the Surgeons) highly culpable in not endeavouring, by some means or other, to put a stop to a system that must ultimately be productive of disgrace, if not of ruin, to those institutions? Now, Sir, to remedy this evil, I would suggest that the *six senior claimants should be examined* (if not already members of the College of Surgeons), and *that person* should be deemed eligible *who has made the greatest progress* in anatomy and surgery. It is not in the nature of things that a stripling, a mere boy, very often with little more in his head than a fond remembrance of his school antics, can, in the course of (in some instances) a few months, be fit to undertake a charge, which at all times, whether in public or private practice, requires a certain tact that is only obtained by practice and observation. On the other hand, I do not mean to say that a House Surgeon can be expected to be a thoroughly [illegible] undoubtedly not; but I certainly think [illegible] ion ought to have a good [illegible] and the common cases in surgery go. I have heard it urged, and that, too, by men who ought to know better, that it is not necessary for a House Surgeon to know more than any other pupil, because he is entirely guided by the Surgeons. Now the absurdity of such a remark is too evident to need refutation. Does it not frequently fall to the lot of a House Surgeon to apply the taxis, to reduce a dislocation of the jaw, or thumb, and twenty other minor, but very important operations. When myself a pupil, I have more than once witnessed the irreparable mischief that has been produced by the ignorance and want of anatomical knowledge displayed in an attempt to reduce a hernia I might mention many instances of irreparable injury to patients from the ignorance of House Surgeons, but shall at present forbear troubling you farther than to express my hope that we shall, ere long, by the timely application of your invaluable LANCET, see a stop put to all the abuses of the London Hospitals, one of the greatest of which the subject of my present communication may be considered.

A MEMBER OF THE COLLEGE OF SURGEONS

Sept. 1, 1825.

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8908 births and 4775 deaths were registered during the week ending Sept. 19th. The annual rate of mortality in these towns, which had been 15·7 and 15 8 per 1000 in the two preceding weeks, further rose to 16·5 per 1000 last week. In London the death rate was 15 8 per 1000, while it averaged 16·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4 5 in Handsworth, 6·1 in Burton on-Trent, 8·0 in Hornsey, 8·3 in Bournemouth, 9 0 in Stockton-on-Tees, 10·3 in Walthamstow and in Blackburn, and 10 4 in East Ham; and the highest rates were 22·0 in Burnley, 23·1 in Hanley, 23·5 in Newcastle-on-Tyne, 23 6 in Warrington, 26·3 in St Helens, 27·2 in Great Yarmouth, 29 5 in Bury, and 30·2 in Middlesbrough. The 4775 deaths in these towns last week included 918 which were referred to the principal infectious diseases, against 1060, 973, and 924 in the three preceding weeks; of these 918 deaths, 691 resulted from diarrhœa, 79 from whooping-cough, 40 from diphtheria, 39 from scarlet fever, 35 from measles, 29 from "fever" (principally enteric), and five from small-pox. No death from any of these diseases was registered last week in Hornsey, Bournemouth, Burton-on-Trent, Handsworth, King's Norton, Smethwick, Barrow-in-Furness, Huddersfield, or Halifax; while they caused the highest death-rates in Great Yarmouth, Hanley, St. Helens, Warrington, Sheffield, Rotherham, and Middlesbrough. The greatest proportional mortality from measles occurred in Warrington and Newport (Mon.); from scarlet fever in Bootle; from diphtheria in Great Yarmouth; from whooping-cough in West Ham, Rochdale, and Newport (Mon.); from "fever" in Grimsby; and from diarrhœa in Northampton, Great Yarmouth, Hanley, St Helens, Bury, Burnley, Preston, Sheffield, Rotherham, Hull, and Middlesbrough. Of the five fatal cases of small-pox registered in these towns last week three belonged to York, one to London, and one to Liverpool. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 57, 49, and 46 at the end of the three preceding weeks, had further declined to 41 at the end of last week; seven new cases were admitted during the week, against 11, six, and nine in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, the 19th inst., was 1803, against 1774, 1796, and 1772 on the three preceding Saturdays; 261 new cases were admitted last week, against 199, 229, and 212 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 114, 123, and 122 in the three preceding weeks, increased again to 128 last week, but were six below the number in the corresponding period of last year. The causes of 47, or 1·0 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, Bradford, Leeds, Newcastle-on-Tyne, and in 44 other smaller towns; the largest proportions of uncertified deaths were registered in Leicester, St. Helens, Manchester, Sheffield, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·1, 16 6, and 14·4 per 1000 in the three preceding weeks, rose again to 16·1 per 1000 during the week ending Sept. 19th, but was 0·4 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·6 in Aberdeen and 13·9 in Perth, to 17·5 in Edinburgh and 20·1 in Paisley. The 527 deaths in these towns included 19 which resulted from diarrhœa, ten from whooping-cough, eight from measles, six from diphtheria, five from "fever," and three from scarlet fever, but not one from small-pox. In all, 51 deaths were referred to these principal infectious diseases last week, against 90, 88, and 77 in the three preceding weeks. These 51 deaths were equal to an annual rate of 1·6 per 1000, the death-rate last week from the same diseases being 3·2 per 1000 in the 76 large English towns. The fatal cases of diarrhœa, which had been 58 and 52 in the two preceding weeks, further declined last week to 19, of which seven occurred in Glasgow, six in Dundee, and two in Aberdeen. The deaths from whooping-cough, which had been nine in each of the two preceding weeks, increased to 10 last week, and included seven in Glasgow. The fatal cases of measles, which had been four and six in the two preceding weeks, further rose last week to eight, of which seven were registered in Glasgow. The deaths from diphtheria, which had been six, four, and two in the three preceding weeks, rose again to six last week and included three in Edinbuggh and two in Glasgow. The fatal cases of "fever," which had been ten and seven in the two preceding weeks, further declined last week to five, all of which occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 51, 54, and 52 in the three preceding weeks, rose again last week to 71, and were 14 in excess of the number in the corresponding period of last year. The causes of 26, or nearly 5 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·1, 15·4, and 18·7 per 1000 in the three preceding weeks, rose again to 19·5 per 1000 during the week ending Sept. 19th. During the past four weeks the death-rate has averaged 19 2 per 1000, the rates during the same period being 14·9 in London and 14·8 in Edinburgh. The 142 deaths of persons belonging to Dublin registered during the week under notice were six in excess of the number in the preceding week and included 17 which were referred to the principal infectious diseases, against 18, 16, and 10 in the three preceding weeks; of these, six resulted from whooping-cough, five from diarrhœa, three from "fever," and one each from measles, from scarlet fever, and from diphtheria. These 17 deaths were equal to an annual rate of 2 3 per 1000, the death-rates last week from the principal infectious diseases being 3·0 in London and 1·0 in Edinburgh. The fatal cases of whooping-cough, which had been three, four, and one in the three preceding weeks, rose again last week to six. The deaths from diarrhœa, which had been nine, ten and seven in the three preceding weeks, further declined to five last week. The fatal cases of "fever," which had been four, one, and one in the three preceding weeks, rose again last week to three. The 142 deaths in Dublin last week included 34 of children under one year of age and 32 of persons aged 60 years and upwards; the deaths of infants were slightly in excess of the number in the preceding week, while those of elderly persons showed a small decrease. Nine inquest cases and three deaths from violence were registered, and 55, or more than a third, of the deaths occurred in public institutions. The causes of six, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

Royal Navy Medical Service.

The following appointments are notified:—Surgeons; A. W. Tredell, F. E. Robinson, and M. T. Male to the *Vivid* for disposal, lent to Plymouth Hospital; J. S. H. Rooney to the *Vivid* for disposal; R. Thompson, E. S. Wilkinson, and E. A. G. Wilkinson to the *Pembroke* for disposal; R Kennedy, J. H. L Page, and W. E. Ormsby to the *Duke of Wellington* for disposal; and A. F. Fleming to the *Wildfire* for diposal.

Royal Army Medical Corps.

Lieutenant-Colonel E. H. Fenn, C.I.E., to be Colonel, vice W. McWatters, retired (dated August 26th, 1903).

The undermentioned gentlemen to be Lieutenants, on probation (dated August 31st, 1903):—Arthur Clayton Horner Gray, Douglas Percival Watson, Thomas Scarbrough Dudding, Carrick Hey Robertson, Francis Montagu Maxwell Ommanney, John Edward Powell, Robert Henston MacNicol, Osburne Jevers, David Duncan Paton, Santiago Luis Pallant, Charles Reginald Bradley, Hugh Herbert James Fawcett, Thomas James Wright, Gerrard Ainslie Kempthorne, James Thomas McEntire, Stanley Everard Lewis, Norcott D'Esterre Harvey, Joseph Allen Longley, Norman Edwin Dunkerton, Patrick John Hanafin, Arthur Carr Osburn, Marmaduke Cordeux Wetherell, Reginald Thomas Collins, William MacDowall MacDowall, Francis John Turner, Harold Crossley Hildreth, Gordon Stewart Mackay, John Duncan Richmond, Forbes Manson Grantt Tulloch, and Ernest Mure Glanvill. The undermentioned Lieutenants are seconded under the provisions of Article 349 of the Pay Warrant:—C. H. Robertson (dated August 31st, 1903); J. A. Longley (dated August 31st, 1903); and N. E. Dunkerton (dated August 31st, 1903).

Civil Surgeon Reginald Bean Anderson is appointed to the medical charge of the troops and Station Hospital, Bodmin, and Civil Surgeon A. J. Copplestone to the medical charge of troops at Devonport.

Imperial Yeomanry.

South of Ireland: Frederick Faber MacCabe to be Surgeon-Lieutenant (dated Sept. 12th, 1903).

Volunteer Corps.

Royal Garrison Artillery (Volunteers):—4th West Riding of Yorkshire: Arthur Mayers Connell to be Surgeon-Lieutenant (dated Sept. 19th, 1903).

Rifle: 3rd Volunteer Battalion the East Surrey Regiment: Surgeon-Lieutenant Alfred Landon Walter Whitehouse resigns his commission and is appointed Second Lieutenant (dated Sept. 19th, 1903). 2nd (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): James Cowe Herbertson to be Surgeon-Lieutenant (dated Sept. 19th, 1903).

Royal Army Medical Corps (Volunteers).

The Manchester Companies: Charles Roberts to be Lieutenant (dated Sept. 19th, 1903).

Deaths in the Services.

Staff Surgeon William Job Maillard, V.C. (retired), on Sept. 10th, at Bournemouth, aged 40 years. He entered the service as surgeon in August, 1889, was promoted staff surgeon in 1899, and retired in 1902. During the outbreak at Candia on Sept. 6th, 1898, some seamen were landing from the *Hazard* when Surgeon Maillard, who had disembarked and reached a place of safety, returned through a perfect deluge of bullets to the boat and endeavoured to bring into safety Arthur Stroud, ordinary seaman, who had fallen back wounded into the boat as the other men jumped ashore. Surgeon Maillard only failed to bring Stroud in through the boat being adrift and it being beyond his strength to lift the man (who was almost dead) out of so unstable a platform. Surgeon Maillard returned to his post with his clothes riddled with bullets, though he himself was unhurt. For this gallant action he obtained the Victoria Cross.

Colonel William Briggs Allin, R.A.M.C., principal medical officer of the Bombay Presidency, at Landom, India, on Sept. 8th Colonel Allin entered the army as surgeon in February, 1877, and was promoted to colonel in November, 1900. He served in the Afghan war of 1878-80, for which he was awarded the medal, and with the Nile expedition of 1884–85 when he had charge of the field hospital at Gakdul Wells, being mentioned in despatches, promoted to surgeon-major, and awarded the medal with clasp and Khedive's star. He also took part in the Isazai expedition of 1892 and was in the South African war in 1899-1900 as principal medical officer of the infantry division. For his services on this occasion he was also mentioned in despatches and promoted to colonel.

Captain Percy Alfred Browne, I.M.S, officiating medical officer, 17th Bengal Infantry, on Sept. 5th, at Bannu, India, from enteric fever, aged 27 years. He joined the Indian Medical Service as Lieutenant in 1900 and was promoted to Captain in June last.

Correspondence.

"Audi alteram partem."

PRIVILEGED MEDICAL COMMUNICATIONS.

To the Editors of The Lancet.

Sirs,—The recent paper of Dr. D. W. Cheever on privileged communications raises many questions on this side of the Atlantic where (except in France) there is no statutory prohibition of the disclosure of facts ascertained *quâ* medical man.[1] With us, apart from the application of the law of defamation, the sanction inforcing secrecy is surely moral and not legal, though it is often and expensively reinforced by the loss of professional esteem. The lengthening list of compulsorily notifiable diseases (industrial poisoning, mental, and zymotic) tends to render the postulated obligation less rigid, as also does the growing practice in courts of making ulterior use of medical evidence. The rule is primarily for the protection and benefit of the patient and only applies to him, as such facts discovered during friendly intercourse (of undue influence, testamentary capacity) can be demanded as unprivileged evidence. In England the patient's waiver would be a good defence and should always be obtained prior to discussing him and his disease. Of late the lay press has regrettably broken into the sanctity of the sick chamber of several eminent men and even in technical reports in the medical journals the actual initials and age of a private patient may often reveal his identity to his neighbours. One has only to enter a public library to see how greedily the contents of the medical papers are devoured. Is it unprofessional to report the unprofessional and criminal conduct of another practitioner? Should coroners and the police be encouraged to obtain clues at public hospitals—those relics of the right of sanctuary? Is it wise to lecture upon pathological specimens obtained in private practice? It is a laudable custom for all medical men to keep patients' case notes and illustrations under lock and key and to direct in their wills the destruction of such evidence, for, to quote Junius, they are "the sole depository of their secrets which shall perish with them." In the laxity of the smoke-room we are all offenders and might well remember a solicitor described by Mr. George Meredith, "a very worthy old gentleman he was, with a remarkable store of anecdotes of his patrons, very discreetly told, for you *never heard a name from him*." An evasive or banal reply should always be ready to such pertinent yet impertinent questions as: "What's the matter with Mr. A, doctor?" or "How did it happen?" "Tell the truth, but be careful *what* truth you tell." Finally, how far is the relation between practitioner and patient mutual, secrecy as to the proceedings being incumbent on the latter? It may be sufficient to repeat Sir William Jenner: "Never believe what a patient tells you another doctor said of his case."

I am, Sirs, yours faithfully,

Inner Temple, Sept. 15th, 1903. Stanley B Atkinson.

⁂ Every care is taken by us to prevent the revelation of the identity of a patient which Mr. S. B. Atkinson alleges often occurs in medical journals and, as far as THE LANCET is concerned, he is in complete error. All our contributors assist us in preventing any unfortunate publicity. We never give the proper initials (save where identification is impossible or unimportant) or private address of any patient, and we never give more dates than are necessary to make the story of the illness a valuable and trustworthy one from a clinical point of view. Lastly, in all cases where pain or inconvenience might conceivably be caused by publication of a report of a case, we obtain from the patient or from his responsible relatives their permission for the appearance of the article. Science occasionally loses by our precautions, as our contributors do not hesitate sometimes to point out to us, but we place the preservation of public confidence in professional discretion higher even than the dissemination of knowledge.—ED. L.

---

[1] The Lancet, Sept. 12th, 1903, p. 767.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—I am glad to see from THE LANCET of Sept 19th, p. 845, that Dr. C. R. Niven recognises that he was in error in attributing to me the opinion that parental alcoholism causes increased desire for alcohol in the offspring. Dr. Niven denies, however, that he imputed to me the opinion that acquired characters are transmissible. Of course, as Dr. Niven says that he did not do so I accept his statement, but as he specifically asked me (July 25th) to give "one indisputable instance of the transmission of an acquired trait," I naturally concluded that he imputed that opinion to me (or why should he have asked me for proof of it?) and I think that anyone else who read Dr. Niven's letter without having seen mine would have formed the same opinion. Dr. Niven asks me for evidence as regards the existence of "molecules" in the germ cells. I used this term in a general sense as indicating the ultimate living elements of which the germ plasm must be composed, but it would, I think, be better to adopt Weismann's term and call them "biophors." Of course, these units are hypothetical, but it is necessary to assume their existence before we can even attempt to account for any of the manifold phenomena of heredity. A science of heredity is no more possible without the assumption that the hereditary portion of the germ cell (the chromatin rods contained within the nucleus) is composed of a multitude of minute material particles or "biophors" than a science of optics is possible without the assumption of the hypothetical ether.

The question as to whether alcoholism in the human subject is capable of producing mental or other defects in the offspring is not a matter that can be submitted to direct experiment and therefore rigorous scientific proof is not obtainable. But it does not necessarily follow from this that the indications given by investigations into the family histories of insane persons are altogether unreliable. The fact that healthy children are often born of drunken parents does not in any way disprove such a possible relationship, as so many counteracting circumstances come into play. The same irregularity of result is seen in insanity irrespective of alcohol, which it can scarcely be doubted is hereditary, that is, of course, that the innate tendencies in the germ plasm of which the insanity of the individual is the outward and visible expression are frequently handed on from parent to child. If one parent is insane it happens not very rarely that none of the children are affected, and almost always some of them escape. Nay, when both parents are insane it is the exception for all the children to become so too. Yet in spite of these negative cases we do not on that account ignore the very numerous cases of insanity in which ancestral taint is clearly demonstrated or consider that they bear no relation to that taint in the direction of cause and effect. As regards my own experience I may say that out of 3445 cases of insanity which have been under my care in no less a proportion than one-sixth of the whole a definite history of parental alcoholism without insane taint was obtained. It is necessary to emphasise the fact that from these figures all cases of parental alcoholism in which such alcoholism was associated at any time with any form of mental derangement have been eliminated, which is clearly a very necessary precaution to take. Now all that these figures really prove is that parental alcoholism is a very frequent *antecedent* to filial insanity, and an antecedent need not necessarily be a cause, even if it be constant or well-nigh so. Nevertheless when an antecedent is very frequent it strongly suggests some causal relation between it and the consequent. The evidence thus afforded is the same in kind as that which leads us to think that insanity is hereditary. Here, again, all that we really know is that ancestral insanity is a very frequent *antecedent* to personal insanity. Of course, it is possible that the relationship suggested by the above figures may be purely accidental and that the facts may admit of quite a different interpretation, and I shall be quite prepared to give up my view if proof to that effect can be furnished.

I note that Dr. G. Archdall Reid in his letter of Aug. 29th, p. 630, commenting on the results of Professor Cossar Ewart's important experiments (which I have myself elsewhere[1] referred to), which he recognises as constituting a difficulty in the way of acceptance of his views, throws out the suggestion that possibly the action of poisons on the germ plasm (if such action takes place) may be of the nature of a "modification" and not a "variation" in which case it would not be heritable. The *modus operandi* of a poison on the germ plasm, we, of course, do not know, but it is possible that the action may be different according as it influences the germ cell when fully developed or the same cell when in process of development. In the former case we might expect the change to be a "modification," whereas in the latter it would seem more likely that a "variation" would take place. This is, however, of course purely hypothetical, but I gather from Dr. Reid's remarks that if the change produced were merely a "modification" his theoretical objection to the germ plasm being capable of receiving permanent injury by the action of poisons would be removed.

Dr. G. R. Leighton's letter in your last issue, p. 843, reminds us very opportunely of the great need which exists for the study of biology to occupy a much more prominent part in the medical curriculum than it does at present. The subject is of vast importance—of how great importance is very far from being generally recognised. What is urgently needed is a national laboratory for the experimental study of heredity, which might in its operations lead to results secondary in importance to no others. Columns of THE LANCET are at present being occupied by a discussion on one very important aspect of heredity, and yet neither side is capable of supplying definite scientific proof of its contentions. Yet the question is one which lends itself to experimental inquiry and could probably be definitely settled on experimental lines. As I have elsewhere[2] put it, "Whilst the nineteenth century may be said to have witnessed the placing of the science of biology on a definite scientific basis with the enunciation of the general laws underlying the development of the organic world, so it may well be that the present century may witness not merely an extension of those laws but the practical application of them to the furtherance of the development of the human race." A well-endowed and well-equipped national laboratory for the experimental investigation of all questions bearing on heredity might be potent for human good beyond the dreams of imagination.

I am, Sirs, yours faithfully,
J. WIGLESWORTH.

Rainhill, Sept. 20th, 1903.

To the Editors of THE LANCET.

SIRS,—In reading the discussion on the above subject I am reminded of a story which I read lately, given on the evidence of the eminent and veracious Dean of St. Patrick's. A certain man was declared to have a wonderful nose. The learned society of the place met to discuss the case and, having decided that no person could have such a nose, was engaged in passing a motion to that effect, when the man, nose and all, walked into the room. As far as I can discern, the present [illegible] them, but that the strong[illegible] biological doctrine that acquired characters are not inherited, which in Weismann's hands becomes the oppressive assertion that acquired characters *cannot* be inherited. It comes to this, that if this extreme view of Weismann cannot be upheld the whole theory of heredity with which Dr. Reid and his friends are intimately concerned fails them;

---

[1] "Heredity and Insanity": Journal of Mental Science, October, 1 02.
[2] Ibid.

they are then reduced to the laborious business of producing much more evidence than they have yet produced which shall on its own merits convince the unbeliever. But is it true that acquired characters are not inherited? An increasing number of neo-Lamarckians are convinced that it is not true. They may not be able yet to mark out precisely the territory which has been wrongly seized and must be disgorged by selection and are content to proceed slowly and surely. We are very properly challenged by the neo-Darwinians to show a single instance or group of instances in which acquired characters are undoubtedly inherited. The answer is neither difficult nor far to seek. Let them examine carefully the skin of any rather hairy youth of their acquaintance and they will find there an extensive, if intrinsically unimportant, body of evidence against them. The examination of this inconvenient witness will place "our friends the enemy" in an awkward dilemma. They are presumably believers in the simian ancestry of man and in Weismann's doctrine of the non-inheritance of acquired characters. Whatever may be the case in other departments of organic existence they cannot hold to both these doctrines when they listen to the evidence given by the witness referred to. Will they surrender here Darwin or Weismann? This is for them to settle and not for their opponents. For the sake of those who have not for themselves investigated this little line of evidence I would mention that any human skin shows many regions on which the primitive or ancestral direction of hair is still retained. But a larger number of regions and greater extent of the human skin show hair-streams which now widely diverge from those of any conceivable simian ancestor. The chief of these are the occipito-cervical region, the frontal border of the scalp, the ventral surface of the neck, the pectoral region from the sternal angle upwards, the dorsal region of the trunk, the inguino-axillary line, the deltoid region, the extensor surface of the forearm, the dorsum of the hand, the dorsal surfaces of the digits, the proximal third of the extensor surface of the thigh, the dorsum of the foot, and the dorsal surfaces of the digits Among these 13 separate areas one or two unimportant departures from the simian hair-slope may be attributed to morphological change; but all the rest can only be interpreted according to Lamarck and, what is more, ascertainable mechanical causes for each and all of them are forthcoming. All these, and a greater number among lower animals, are fully treated in a small book which will shortly be published on the "Direction of Hair in Animals and Man." It is certainly premature to close this discussion in favour of Dr. Reid and his supporters on biological grounds. My only reason for addressing you is to draw attention to this aspect of the questions at issue One would almost apologise for the seeming triviality of the evidence here referred to were it not for Sir Norman Lockyer's recent commendation of the study of the *même inutile*. I am, Sirs, yours faithfully,

Sept. 14th, 1903. WALTER KIDD.

To the Editors of THE LANCET.

SIRS—Professor Romanes in his "Thoughts on Religion," if my memory serves me correctly, says that Mr. Darwin was not a profound theologian and that his agnosticism was an outcome of the everywhere terrible cruelty of nature. Should *I* therefore be ashamed for being pained at the same thing? If I, in my darkness, have made my appeal—my impassioned appeal as Dr. C. Mercier prefers to describe it—to those who sit in light for guidance, surely it would have been nobler to let me feel the warm clasp of a guiding hand in the deepening gloom than to deride the natural desire for the kindly light of day. I am no profound philosopher. I shall not be ashamed to sit at the feet of Dr. Mercier and to learn all he has to teach *if only it be true*. Before my lesson begins, however, may I quote an Arabian proverb which says: "Man is four: he who knows not and knows not he knows not, he is a fool, shun him; he who knows not and knows he knows not, he is simple, teach him; he who knows and knows not he knows, he is asleep, wake him; he who knows and knows he knows, he is wise, follow him." I lay no claim to having deep acquaintance with the science of biology; indeed, I am not even a second-rate biologist. It would, however, have been more fitting for Dr. Mercier to treat his opponents with common courtesy and not to compare them to children with pinafores. I am told by Dr. Mercier that a sexually produced child has a father and a mother. I thank him for fact No. 1. I am also told that "In so far as the characters of the father and mother are alike the corresponding characters of the offspring almost always reproduce those of both the parents. For instance, if the father and mother each have four legs and one tail the offspring will almost certainly possess four legs and one tail. But as to those characters in which the parents differ the corresponding characters of the offspring cannot faithfully reproduce those of both parents and in such cases the characters may follow one of several courses," &c. That is fact No. 2, which my childish brain is unable to grasp. I should have wished it could have been more plainly stated. As far, however, as I understand this, it means that when two parents exactly resemble each other in any trait the offspring will also resemble them and reproduce that trait and it is only when the parents differ (though he does not tell me how they come to differ) that the offspring can vary. Now the earliest known birds—the hesperornis, archeopteryx, &c.—possessed teeth and it is surely to be presumed that both sexes possessed them. If the father and mother did not vary the child would continue to reproduce the parental trait—the teeth. We are thus confronted with the difficulty of explaining the loss of teeth in all birds from the Mesozoic formations upwards. If it be said that one of the parents did vary by a "difference between parent and offspring not due to post natal action of the environment on the offspring," then there is the difficulty of explaining how it came to differ from *its* parents if it should have reproduced the parental traits. A more serious difficulty confronts me, for Dr. Mercier in the continuation of the passages I have already quoted from him says that the offspring "may (1) resemble either parent (where they differ) to the exclusion of the other; or (2) resemble either parent at different periods of its life; or (3) the characters may be mixed; or (4) may show a mean average between the two parents." It might have been possible, though even then it would have been difficult, according to Dr. Mercier's reasoning, to explain the loss of teeth in birds; but surely it would be utterly impossible in any of the above four ways to explain the replacement of jaws with teeth by beaks in birds. I pass on to the case of the horse. It may be said that the modern equidæ are animals whose limbs (omitting for the present the slender splint bones) possess only one finger or toe. They are descendants (*vide* Huxley's Lectures) through the pliohippus, &c., of the eohippus of the Lower Eocene, "which possessed four well developed toes and the rudiment of another on the forefeet and three toes behind." If now we try to apply Dr. Mercier's reasoning to explain the loss of toes our difficulties, if they were great with regard to birds, are here much greater. Surely, if both parents possessed four toes the offspring would also possess the same number; if not, how did it come to have less? Or if both parents possessed different numbers of toes how could there be a mixture in the offspring? I do not wish to labour this, as I desire to come back to the "legs of the kittens." Here we have in the evolution of the horse's legs thousands, if not millions, of generations, with millions upon millions of variations in the legs, though the number of the legs and tails remained exactly the same. This is what Dr. Mercier was able to point to triumphantly as the *fallacia a dicto secundum quid et dictum simpliciter*.[1]

Dr. Mercier next proceeds to discuss a hypothetical case in which "the father is a drunkard and the mother may not be; indeed, she may have a great abhorrence of drink," and says, "the offspring may have the father's desire or the mother's abhorrence, or it may follow either at different periods of its life or their qualities may be blended and it will simply have a relish for a glass of beer." Here, again, as I have so often pointed out with regard to Dr. Mercier's reasoning we have statements without any proof. I do not intend to traverse the whole statement, but I do wish to know *how* the mother came to have an abhorrence of drink? Did it grow in her from nothing, just as Topsy herself is supposed to have grown? Or was it the result of a prolonged stringent selection? Does Dr. Mercier believe that man began with no desire for alcohol; if so, has he produced any evidence in support of his belief? I myself believe that man began with a fierce desire for alcohol and am prepared to tender more evidence in support of my belief than you are likely to give room for in your columns. May I in the present case give one instance? So far as we know the Eskimos had no acquaintance with alcohol till visited by the early Northmen. Now Dr. Nansen in his "Eskimo *Life*," p. 97, says: "They are passionately fond of brandy—women as well as men—not, as they often confided to me, because they like the taste of it, but because it is so delightful to be drunk, and they get drunk whenever an opportunity offers. ...... That the intoxication is really the main object in view appears also from the fact that the Kifaks do not greatly value their morning dram because it is not enough to make them drunk." Not only have we introduced to them our vices but we have also introduced to them our higher (?) civilisation and our diseases. From that day the tragedy of this race began which is leading to their extinction. Hans Egede, nearly the first missionary to them about 150 years ago, calculated their numbers at 30,000; they now number about 10,000. I shall not, however, enlarge upon this subject for, as Dr. Reid truly says in his letter to you in THE LANCET of Sept. 19th (p. 846), there has only as yet been a preliminary skirmish in this controversy. Much has yet to be produced and when it is produced it will be evident there was reason for my "impassioned" appeal to those who know. Let me, however, return to our hypothetical case and ask Dr. Mercier for proof for his statements, for example, that the child may at one time have the father's desire and at another the mother's abhorrence for alcohol. Dr. Mercier twits me for having so recently begun the study of heredity. I admit the impeachment, but surely there is as much credit due to the man who has only recently begun its study and has at least learned *something* about it as to the one who has made it his life's study and has only got so far as to define a variation "as a difference between parent and offspring not due to post-natal action of [illegible] able and powerful tendency that the members of every race evince in ordinary circumstances to return to the form from which their parents have deviated." In this discussion it has been pointed out that there seems as great, if not a greater, tendency for the offspring to vary ancestorwards than in any other direction. I also thought that this had long been recognised by biologists—for example, Darwin in "Animals and Plants," vol. ii., published in 1868, devotes the whole of Chapter xiii. to the subject, and Dr Harry Campbell in his "Causation of Diseases," p. 84 *et seq.*, published in 1889, refers to the same It is not for me to dispute Dr. Mercier's claim to priority, but it would be interesting to know the date of his proclamation.

---

[1] THE LANCET, August 22nd, 1903, p. 553.

In the last paragraph of his letter Dr. Mercier says that he expects in next week's issue of THE LANCET that I shall credit him with the belief that giraffes lengthen their necks by stretching. And if I did, what matter? It is so reasonable a belief that it is exactly what I believe myself, though space does not permit of my giving my reasons. I know, Sirs, this correspondence is primarily addressed to yourselves, but in reality it is also addressed to many thousands of trained intellects who know the value of evidence. I have made one mistake unwittingly and have had the courage to apologise for it. I leave yourselves and your readers to form their own opinion of the treatment I have received from Dr. Mercier. Had he been able to disprove one of my arguments it would not have mattered much Some years ago in your columns there were attacks on Dr. Reid himself, the outcome of which was that I determined that I would see what Dr. Reid had to say for his views. I read everything I knew he had written with the result that I am now doing whatever little I can to defend his opinions because they appear to me to be incontrovertible. If it be that the attacks made upon myself should lead others to read "The Present Evolution of Man," "Alcoholism: a Study in Heredity," "A Theory of Acquired Immunity," &c., all by Dr. Reid, I shall remain satisfied. I have no fear of the results; the truths may be unwelcome, but they are still truths and anyway a flood of new light is thrown over one's everyday combat with disease. *Whatever be the result* I agree with Eimer, who in the last paragraph of his "Organic Evolution" says, "Our duty is work; *our right is free investigation;* our satisfaction the establishment of a grain of truth for the benefit of mankind; our hope—knowledge."

I am, Sirs, yours faithfully,

C. R. NIVEN.

Liverpool, Sept. 20th, 1903.

To the Editors of THE LANCET.

SIRS,—To illustrate his theory that such a disease as malaria may cause degeneracy *of the offspring of parents* afflicted by it and at the same time evolution of the race through the survival of the fittest, Dr. Scudamore takes at "random to represent the vitality of individuals" the numbers 3, 6, 11, 1, 13, 2. His illustration is a very good one and I am grateful to him for it, but surely such immense differences as his figures indicate do not occur in nature. Since we cannot accurately measure degrees of "vitality" we are able to reason concerning them only from the analogy of characters which we are able to measure. Let us take size as an example. In any average group of six men probably the shortest man will not be less than five feet high. If Dr. Scudamore's numbers represented truth we should expect to find the tallest member of the group to be 65 (5 × 13) feet high. Moreover, size among us is no longer a great factor in survival. Size has therefore become extremely variable, just as the colour of our hair has become variable or as animals, domesticated and protected by man and thus no longer exposed to natural selection, become variable. When natural selection is in full swing variability is much less because all the race is kept at a high average. A race exposed to virulent malaria is exposed to very stringent natural selection. Therefore the resisting power among the different individuals probably varies much less than size. If we take the number 1 as representing an individual just capable of survival then such a series as the following will represent the truth much more nearly than that given by Dr. Scudamore: $\frac{90}{100}$, $\frac{91}{100}$, $\frac{92}{100}$ ...... 1, $1\frac{1}{100}$, $1\frac{2}{100}$, $1\frac{3}{100}$ ...... $1\frac{10}{100}$, and so forth. If the number 3, which is the one chosen by Dr. Scudamore to represent the average degree of filial degeneracy, be subtracted from each item of [illegible] cies affected would at once undergo ex- [illegible] hoosing so large a number Dr. Scudamore [illegible] st to his own argument. Nevertheless, a [illegible] of degeneracy of offspring would cause [illegible] of the race—how minute may be realised when we consider the slowness of the evolution of a species the individuals of which, as a rule, are not much exposed to deteriorating agencies but die violent deaths. Thus a congenitally weak antelope, or one that becomes weak from any cause, is quickly destroyed by carnivora. Degeneration of offspring through parental injury cannot occur to any extent among these animals, yet antelopes evolve very slowly. If external agencies acting on them made their offspring degenerate even to a slight degree the scale would be turned, evolution would cease, and the species would go downhill.

Inborn immunity against many diseases is rare. Thus most people are susceptible to measles. But most people are able to acquire immunity—i.e., recover after an illness of a definite course. The individuals who survive in a country where measles is prevalent are, therefore, not as a rule those who are congenitally immune but those who possess the congenital power of acquiring immunity. Consequently it is the latter character which undergoes evolution—which is, therefore, the object, if I may use the term, of natural selection. The English, therefore, who have been afflicted by measles probably for thousands of years, are just as susceptible to infection as the Polynesians who have only lately experienced the disease; but they make much better recoveries. *Clearly, therefore, acquired immunity is not in the slightest degree transmitted to offspring,* in whom it would, of course, appear as inborn immunity. Only the inborn power of acquiring immunity is transmitted. Both the disease and the subsequent immunity are profound physiological changes *affecting* the whole body, *yet apparently* [illegible] effect on the offspring of people [illegible] race is affected only by the [illegible] chicken-pox is not a cause of death but is a cause of illness and the acquirement of immunity. Races that have been afflicted longest by it apparently take it as readily and as severely and are no more degenerate or otherwise changed than races that newly experience it Whenever races change we see always that the [illegible] the lack of it, but that [illegible] where is there evidence [illegible] cies acting through the [illegible] parents. [illegible] *may* cause [illegible] coming. [illegible] it is possible to assert that in circumstances not hitherto discovered two and two *may* make five.

I am, Sirs, yours faithfully,

G. ARCHDALL REID.

Southsea, Sept. 20th, 1903.

To the Editors of THE LANCET.

SIRS,—I have read all the letters on this subject in the

POST-GRADUATE WORK ABROAD.

II. BERLIN.[1]

(FROM OUR OWN CORRESPONDENT.)

BERLIN is becoming more and more the favourite resort of medical men, both Germans and visitors from foreign countries, who are desirous of increasing their medical knowledge by attendance on additional courses and lectures. Formerly Englishmen and Americans who went abroad for the purpose of continuing their studies betook themselves for the most part to Paris or Vienna, but for about the last 20 years Berlin has to a great extent taken the place of Vienna. In both cities the supply of clinical material is very abundant and the teachers enjoy a well-merited reputation. Berlin, however, has the advantage of possessing hospitals and laboratories which are hardly equalled elsewhere and on which enormous sums have been expended during recent years. Of the other continental capitals there are few, except Moscow, which contain such fine hospital buildings as the Royal Surgical Clinic, the Obstetric Institute, and the new clinics of the Charité Hospital, or such medical institutions as the Pathological Museum, the Physiological Laboratory, and the Laboratory for Infectious Diseases. In addition to the various laboratories and clinics belonging to the University there are the great municipal hospitals—namely, the Friedrichshain Hospital, the Urban Hospital, and the Rudolf Virchow Hospital, the latter ot which is in course of construction and will cost about 14,000,000 marks (£700,000). These hospitals may be visited all the year round and among the junior assistants there are almost always some who speak a little English and are willing to act as guides to English visitors. Berlin has also excellent private clinics and sanatoriums constructed and managed in accordance with the most modern principles of hygiene and asepsis. Among these may be mentioned the clinic of Professor Landau, the well-known gynæcologist, the sanatorium of Dr. Kante, and other similar establishments which are also accessible to foreign medical men desirous of seeing the premises or of witnessing operations.

For those whose object is to do more than to pay a short visit to Berlin and who have gone there with the intention of entering on regular study two ways are open. The first way is to matriculate as a medical student Those following this system have the advantage that they may attend lectures and clinics of all the celebrated professors of the University, such as Professor von Bergmann, Professor von Leyden, Professor Waldeyer, Professor Senator, and others who are not engaged in post-graduate instruction; moreover, the regular lectures and clinics of the University are somewhat less expensive than the post-graduate courses, which are exclusively private undertakings. It is, however, a drawback that medical men matriculating as students have to spend at least one semester in Berlin—namely, either the winter semester from the end of October to the end of February or the summer semester from the end of April to the end of July. The winter semester, which is the longer of the two, is the preferable one, because in the summer semester less work is done owing to the great heat which often prevails at that season in Berlin. Foreign medical men desirous of matriculating must arrive at least one week before the end of the vacations; they must apply at the office of the secretary of the University and produce certificates showing that they are either already qualified medical men or that they are entitled to study medicine according to the laws of their respective countries. When their certificates have been found to be in good order a day is assigned to them when they have to appear before the rector of the University and the dean of the medical faculty for the purpose of matriculating and swearing obedience to the University statutes. The matriculation fees are very moderate, but for every lecture, practical course, and clinic which is attended a separate fee, which in most cases is 40 marks (£2), has to be paid at the "quaestur" (treasury) of the University. It is advisable before travelling to Berlin to get the official list of the University lectures and courses of instruction, for in this way a foreign visitor may form an idea at home as to which lectures and courses will suit him. This official list is published in a Latin edition and in a German edition twice a year before the commencement of each semester; it may be obtained from Messrs. Speyer and Peters, university booksellers, W. 43, Unter den Linden, and from other booksellers as well. It must, however, be remembered that this official list contains only the lectures of the University staff—i.e., of the professors and the *privat docenten*—while the courses of instruction conducted by other medical teachers, as, for instance, by the assistants in the clinics and laboratories, may be found either on the notice board (schwarzes Brett) at the entrance of the respective institutions or in the advertisement columns of the leading medical journals.

Medical men unable to stay a whole semester in Berlin have to follow a different system. They have to attend the special post-graduate courses which on an average are of one month's duration. Post-graduate courses have been for a long time a feature of almost every German university, and especially of Berlin University. Although some courses are delivered nearly all the year round by certain teachers, the proper seasons for post-graduate study are the month of March and the month of October during the University vacations, when the great majority of the students are away. A syllabus of systematic courses and lectures to be delivered during these two months has been drawn up by an association which has Professor Hirschberg, the well-known ophthalmologist, as its chairman and consists almost exclusively of extraordinary professors, *privat-docenten*, and assistants of university teachers. This association is strictly private and has no official connexion with the University, but is nevertheless permitted to make use of the clinical material and the laboratories of the University. These courses of the Docenten-Verein für Ferien-Kurse (Association of University Teachers for the Delivery of Vacation Courses) are essentially practical so as to meet the needs of medical practitioners. In them every branch of medicine is represented. The last syllabus of the association included 21 courses and lectures on normal and pathological anatomy and histology and on bacteriology, one on physiology, 43 on clinical medicine, eight on diseases of the brain and nerves, ten on surgery, six on diseases of the eye, 12 on otology, 11 on rhinology and laryngology, ten on gynæcology and obstetrics, four on diseases of the skin and syphilis, five on diseases of the genito-urinary system, seven on forensic medicine and hygiene, and one on radiography. The delivery of certain lectures begins early in the morning and some are held late in the evening, so that a very industrious man may spend the whole day in attending them. Though the ordinary professors of the University for the most part abstain from delivering post graduate courses, the list of teachers, nevertheless, includes a great many well known names, such as the extraordinary professors Ewald, Brieger, Baginsky, Rosenheim, Eulenburg, Landau, Nitze, and others. Medical men desiring further particulars should apply to Herr Melzer, secretary of the Docenten-Verein für Ferien-Kurse, Langenbeck Haus, N.W. Ziegelstrasse, Berlin. From Herr Melzer they may obtain a detailed list of the lectures and courses of the association, showing the time, the place, and the fees of each course. The fees for most of the lectures are 40 marks (£2) No formalities whatever are required from those attending post-graduate courses, they have only to apply at the office of the association in Langenbeck House (it is open about a week previously to the beginning of the lectures), to purchase a tic
for each course which they desire to attend, and to h
ticket to the lecturer or teacher in question The
series of lectures will open on Sept. 28th and
Oct. 24th. In addition to the lectures of the as
are a good many other courses and opportun
instruction all the year round; especially
a thorough training in bacteriological
are afforded in the numerous private
tories, in which case the terms woul
with the management. Courses in
with laboratory practice are given in
tion for Hygiene; the hours of work
from Nov. 25th to Dec. 20th. And
of three months' duration is deliv
tion for Infectious Diseases,
9.30 A.M. to 3 30 P.M.

Some knowledge of German i
to profit fully by the opportuni
lectures and previously to
in German should be taken.

---

[1] No. I. (Paris) was published in THE LANCET of Sept. 12th, 1903, p. 781.

are on an average cheaper than in London; admission to entertainments such as concerts and theatres may be obtained at prices which are very moderate when compared with those in London. The boarding-house system is not so much resorted to in Berlin as in London. There are, of course, a good many pensions which have some advantages for persons who are not very conversant with the German language; the majority of students and those who are attending the post-graduate courses, however, do not live in pensions but generally take their meals in restaurants. Suitable rooms may be found in the Quartier Latin which is in the vicinity of the University clinics and laboratories. A passport, though not indispensable, is nevertheless useful and may be instrumental in saving much trouble; registered letters, for instance, are not delivered to unknown persons unprovided with means of identification. In conclusion, I may state that there is no foundation for rumours which have been circulated to the effect that in Berlin there is a feeling of hostility against English visitors; it may also be added that the medical profession of the city will be much gratified by their English *confrères* more frequently undertaking the journey to Berlin. I shall be happy to give in the pages of THE LANCET any further information which intending visitors may require.

THE
ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE THIRD SECTION.

WHAT in England is termed sanitation was certainly best represented by the third section and it was here more especially that the British members made their presence felt. The first question discussed related to the treatment of sewage and on this a report was presented by Dr. SAMUEL RIDEAL, Vice-President of the Society of Public Analysts, London. Dr. Rideal said that modern practice in England and America was in harmony with the opinions which he put forward a few years ago and which he could now summarise as follows: (1) That tanks for preliminary treatment, preferably bacterial and anaerobic, are essential for the successful removal of fats from, and the production of ammonia in, sewage; (2) that percolating filters with continuous admixture of [illegible] and efficient than contact beds [illegible] including nitrification; (3) [illegible] proves the effluent and that this part of the process is more rationally conducted in a lagoon or water course than confused with the nitrifying process in expensive contact beds; and (4) that it is impossible without expense to sterilise the effluents of sewage works, and that it is more practical to purify drinking water, oysters, water-cress, and the like, immediately before consumption.

M. F. LAUNAY, engineer in the service of the Paris municipality, dealt in his report at great length with the various modes of bacterial treatment and his conclusions were to a large extent imbodied in the motion which the section adopted and which was worded as follows:—

> The divers processes for the biological purification of the sewage of towns and the waste waters from manufacturing or industrial establishments are connected with all the general principles the application of which opens out a new and fruitful era in regard to the sanitation of towns and of watercourses. Whenever engineers, hygienists, manufacturers, or municipalities have to deal with the problem of the purification of sewage and waste water from factories, &c., they should seek inspiration from the above processes and may [illegible]

On the second day the old and vexed question of the combined or the separate system of drainage came on for discussion. Nothing could more f[illegible] the progress made in sanitation than the disc[illegible] so years ago it was the burning [illegible] there was quite a battle over the matter [illegible] in 1898 there was not the suavity, the give-and-take tone which at Brussels showed that the hatchet was buried and that both camps had learnt to respect each other. Now the warmest advocates of the mixed system admit that in certain localities it is preferable to have a separate system and not to allow the rain water to penetrate into the sewer. On the other hand, the most intolerant partisans of the separate system are now prepared to agree that where there is a very good fall it is not necessary to have a separate system. Even mechanical contrivances, such as pneumatic suction or pressure, are no longer anathema and consigned to perdition, and the section was well-nigh unanimous in recognising that the Lienur, Shone, or Berlier systems had, after all, rendered considerable service. This billing and cooing between ancient and somewhat bitter and bigoted adversaries was certainly one of the most novel and remarkable characteristics of the Congress. M. E. PUTZEYS, engineer of the Brussels waterworks, recalled in his report on the subject that at the first international congress which met at Brussels in 1852 Mr. Edwin Chadwick and Mr. Ward alluded to the services which the modern water-carriage system might render, but what they said was so absolutely opposed to the feelings of the day that they met with a cold reception. From 20 to 30 years had elapsed before the water-carriage system of drainage, the *tout à l'égout*, was generally recognised to be preferable to cesspools and other systems which allowed crude sewage to stagnate. After another 20 or 30 years, while the "all to the sewer" is still maintained to be the best solution of the problem, it is now allowed that it may occasionally be expedient to have two sewers, one for rain water and one for sewage proper. Further, and as a concession which was still harder to obtain, it is now recognised that for the latter sewer mechanical means may be employed to insure a flow at a self-cleansing velocity. This velocity, M. Putzeys says, should be not less than 70 centimetres per second in large sewers and 80 centimetres per second in small-pipe sewers. Nor is velocity alone needed, there must be depth as well, otherwise the solid particles floating in the water will be attracted to the walls of the sewer. Now a sewer may be built of the right size to carry away the 150 or 200 litres of water per day and per head of the population which represent the general amount of sewage, slop water, and waste produced by a town population, but this amount is only as 1 to 40 when compared with the rainfall; also the rain brings a great deal of sand, earth, grit, and other solids that do not move forward easily in a sewer but form deposits. These are the conditions that have suggested the advisability of the separate system. Mr. ALFRED ROECHLING, who was for a considerable time borough engineer at Leicester and whose works on drainage are so well known, was also one of the reporters on this question; he likewise protested against any dogmatism and pointed out that both the combined and the separate systems had their advantages. Mr. Roechling's report concluded with these words: "It may appear to the uninitiated that the separate system possessed *a priori* undoubted advantages in simplicity and cost over the combined one, but it is hoped that the foregoing observations will fully demonstrate that such a conclusion may prove very illusory and that a correct judgment is only possible after, in each separate case, the two systems have been fully compared from all local sanitary and economic points of view."

In the course of the discussion on these reports it was pointed out that the tendency was to bring water to a town without thinking how the water was to be got out of the town. It was imagined that when once this water had been befouled it would prove useful to agriculture. Experience had shown that there was no profit but considerable cost. M. PUTZEYS said that at Paris in 1889 the Congress declared that the separate system was only to be employed in exceptional circumstances. He now claimed that the two systems stood at least on a footing of equality. Of course, the separate system did not necessarily involve the employment of machinery to raise the sewage. Mr. ROECHLING, speaking after M. Putzeys, pointed out that the separate system had been used in England since 1840. The late Mr. Chadwick had said "rain to the river and sewage to the land"; how could this be realised otherwise than by a separate system? But there were places where the separate system would cost more than the mixed system and in most cases the latter had been adopted. He did not denounce either system: both were good and the selection would [illegible]

s of the
speech.
drainage
with the
t Buenos
frequent

epidemics. In 1891 some 3000 people died from yellow fever. Thereupon they started building sanitary works and this was done on a colossal scale. But every detail was planned out before anything was attempted. There had been no patchwork. They took their water up stream and under the river La Plata. Here it was half filtered and very fresh. Then they had clarifying and filtering beds and pipes delivered the water into the highest houses. They could supply 90,000 cubic metres per day. They had several systems of sewers and with a possible rainfall of 33 millimetres in an hour the largest and nearest overflows into the river were necessary. But the sewage proper passed under the river and went to a distance of 10,000 metres where there was a separation chamber and heavy matter was excluded. Pumps then sent the sewage 1500 metres further to a point in the river where the water was at a lower level than the town and the sewage could not travel back to the town. As a result of this great undertaking not only had the general death-rate been reduced by half but some diseases had altogether disappeared. People had gone to the town with yellow fever, cholera, and plague but they had not spread these diseases among the population.

M. CHARDON then explained that the (I believe somewhat modified) Berlier system was applied in the Paris suburb of Levallois-Perret. They had 35,000 metres of iron piping and adding the house connexions about 50,000 metres in all. This worked day and night without a moment's interval and the experiment had now been going on for ten years. They took all except rain water and this for a population of 60,000 people. The pumps drew the air out of the pipes as well as the water but they found in practice that it was easier to draw up water than air, and therefore, though they had only undertaken to drain the closets, they were now taking the slop water and house waste water as well. He concluded by arguing that mechanical processes did not differ from, but in many cases formed a necessary part of, the separate system.

Mr. WILKINSON, C.E., of Manchester thought that rain to the river and sewage to the purification works would be the ideal. But they were constantly met by the question of expense. As it cost some £2 10*s.* to purify 1,000,000 gallons of sewage they must limit the volume of sewage. On the other hand, in the absence of the rain water to flush the sewers better gradients would be required, and as these cannot always be obtained it meant a more extensive use of mechanical processes such as had been described. But the separate system could not so readily be applied to overcrowded and dirty courts and alleys. Here the rain water was not so great in proportion to the number of inhabitants and it was particularly foul. A small shower would send water as foul as sewage to the sewer. Here the combined system was best.

After several other speeches M. BECHMANN, chief engineer connected with the administration of the city of Paris, brought the discussion to a close. He remarked that the period of combat had ceased. In 1889 they were in full fighting trim. He had good reason to remember and to know, for he then presided over the sittings of the section. The majority was then, perhaps, too emphatic. But they were troubled by inventors who sought to impose their methods as the only possible solution of the difficulty. Those who had applied the old system as recognised by their revered master, Mr. Chadwick, were not to be upset by these patent and untried systems. To day they had quieted down and the old disputes had had a fine educational result, so they were now told not to decide absolutely in favour of one or the other but to keep an open mind and to be led by local circumstances. Thus it was very easy for Mr. Wilkinson to talk of draining into the sea, but they did not all live in an island and what could be done for many English towns but few German towns and no Polish town could attempt. M. Bechmann proposed a motion which he thought would unite all parties. After a little further discussion and some verbal modifications the motion was carried in the following terms :—

> The separate system and the combined or mixed system can each be usefully employed, according to the circumstances of the case. It is only after both methods have been carefully studied and compared in each particular instance and when the advantages and the inconveniences of the systems as applied to the local peculiarities have been submitted to full examination that the sanitary engineer will be able and will be justified in attempting to formulate conclusions.

This resolution, it will be seen, gives satisfaction to both parties and was carried unanimously.

Something of the old combativeness that used to distinguish this section revived over the next question. It related to gathering grounds, but especially to deriving water from the chalk for drinking purposes. M. JANET, a French mining engineer, thought that water should only be taken from the chalk when it was absolutely impossible to get it from sandy soils. Then M. E. A. MARTEL of Paris condemned water from the chalk very energetically. Now a great many towns and water companies derive their water from the chalk and therefore these assertions were challenged, and a very prolonged and at times heated debate ensued. Many Belgians were particularly excited over the matter, as the very extensive works which supply the communes that surround Brussels derive their water from chalk formations. A paper by Mr. KENDAL, of the London Geological College, was read describing how the question stood in England and M. VAN DEN BROECK thought the State should be able to give small districts technical scientific advice on such difficult questions. Dr. PAGLIANI explained that in Italy the water was frequently taken from the chalk and these waters were often not so hard as might be expected. From the bacteriological point of view they were remarkably pure. To condemn such waters would be to deprive, and this without sufficient grounds, a large portion of the population of their present water supply. On the other side it was argued that chalk soils were apt to crack and that foul water could run down these fissures and thus escape the filtering action of the chalk. The evidence also in regard to the waters actually in use was contradictory, for in some cases the best reports were made and this was not the same in regard to other districts. Mr. ROECHLING insisted on the great variability of waters from the chalk. He thought they should be treated with suspicion till the contrary was proved and urged the importance of the effect likely to be produced by a vote of the section on such a subject. Three sittings were devoted to debating this one question. Then followed more testimony in favour of water from the chalk, notably that drunk at Liège and at Mons. Others strove to reconcile both parties and finally the section carried the following motion :—

> The supplies of water from chalk soils should be carefully watched, because the filtration of such waters may be faulty in consequence of the fissures that may occur in the soil. The water-supply service being established measures should be taken constantly to watch not only the water itself but the gathering ground whence the water is derived.

Of course everybody and whatever his opinion was able to vote in favour of this motion. Who would vote against watchfulness ?

The next subject was an important and interesting report drawn up by the international committee on the hygiene of the street. The authors are Dr. ICHMID, chief of the Sanitary Services of the Swiss Republic, Dr. BOHM of Berlin, Dr. POLAK of Warsaw, Dr. PAGLIANI and Dr. TEDESCHI of Turin, and Mr. ROECHLING. The discussion was opened by representatives of Berlin, Brussels, and Hamburg, who described how in these towns the streets were swept, the snow was removed, the household refuse was destroyed, lavatories were provided, help for the sick and wounded was organised, and gave other such information. M. DE KONTKOWSKY (Russia) insisted that none of these public services should be intrusted to contractors or private companies. He believed that destruction by fire was by far the best process for dealing with refuse and had a good deal to say in regard to the iniquity of building houses on ground made up of unpurified town refuse. Dr. PAGLIANI spoke in eulogistic terms of the refuse destructor of Brussels, which many members of the section had made a point of visiting. Amid applause he proposed to congratulate the administration of the town upon the progress they had realised in this respect. M. VANDERPERK of Rotterdam agreed, but thought some means should be taken to remove the ash and other incombustible substances before putting the refuse on the destructor furnace. A great number of minutiæ were debated during the greater part of two sittings, all in regard to the control and cleanliness of streets. At last the section carried a motion congratulating the international committee on the good work that it had done and agreeing with the conclusions of its report.

The section now began the debate on the last subject—the warming and ventilation of dwellings. At first the discussion was devoted to warming apparatus and the prevention of over-dryness or of overheating the air. On these point considerable improvement had been achieved but no such progress had been accomplished in regard to ventilation. A the same time the use of electricity as a motive force would certainly render great service. Then, again, with the air of compressed air it was possible to tell the temperature of different rooms which were some distance away and they could be controlled by one person in attendance. On the last day on which the section met the matter of ventilation was taken in hand and M. BECK argued that nature must be helped in every way; that vitiated air was hot and therefore went up and consequently should be extracted from the upper part of the rooms He did not think that in practice any account was taken of the varying amount of air required according to the number of persons in the room. Other speakers did not agree and thought that the air should be drawn out by the nearest road and it was sometimes advantageous to mix the *heated and cold air above and to let it down* slowly on the people below. M [illegible] to the pipe of a [illegible] employed it m [illegible] up in the hollow [illegible] and the carbon monoxide *could pass through them into the* dwelling or bedrooms He thought that warming apparatus should, as far as possible, be placed in the hall and passages rather than inside the rooms M HEYNIEUX explained that in Belgium the Minister of Public Works had appointed a commission to draw up rules in regard to the conditions that should be imposed in all installations for warming dwellings The Government itself was building important structures and the solution of the problem for warming and ventilation had been made the subject of a competition Mr. ADOLPHE SMITH *described* the advantage of ventilating downwards which had been realised at the Bourse of Havre and this after upward ventilation had been tried for some years It was not possible to dogmatise on the matter. Whatever the system might be it was possible to ventilate public buildings, theatres, &c, because there would probably be enough money forthcoming to make the attempt. This was not the case in regard to private houses, and Dr J. F J. Sykes had given evidence that in England the authorities proclaimed their failure to solve the problem They insisted on through ventilation In other words, the rooms were to be purified *occasionally* by creating such a draught as to render them uninhabitable This was a clear indication that when inhabited they were insufficiently ventilated To ventilate properly the inlets must be so extensive that the quantity of air entering will be so great and will spread over so wide a surface that it need only move slowly and imperceptibly to change the air of the room Dr T. Glover Lyon in London had thus ventilated one small room, but it cost him more than £100 The first thing was to find out how to perfect ventilation at whatever cost and *this it* appeared had been done. Now this laboratory experiment had to be converted into a commercial reality by discovering the means of bringing about a very large reduction in the cost. Dr. PAGLIANI recalled the theories so eloquently exposed by M Emile Trélat at previous congresses, *for he* spoke of cold air and hot walls The section then adopted a motion thanking the reporters for their communications and passed on to the more general consideration of the internal condition of dwelling houses Dr SYKES explained *how* in England a certain *reduction* in taxation was accorded to dwellings let out as flats if they were built in harmony with the more advanced principles of hygiene He insisted that in these dwellings the staircase should be in the *open* air otherwise all the dwellings would be connected atmospherically *with one* another Diseases then spread rapidly from one household to the other The following motion was finally proposed and brought the discussion to a somewhat unsatisfactory conclusion —

> The section recognising the importance of the points raised and the interest of the *communications made*, without being able to arrive at any definite conclusions *expresses* the desire that these questions shall be placed on the agenda of the next Congress

There now followed a series of papers presented by individual members of the section that were not part of the programme. *First among* them was an interesting communication on slaughter houses by Dr J POLAK of Warsaw who was careful to insist that they should be large enough to meet the demands of growing populations. Other speakers read papers on special systems for purifying sewage and M. DE TOBIANSKI showed how the smoke from chimneys might be caught and utilised Finally, M DE KOSTKOWSKI rose and declared that the section had accomplished a great deal of work and suggested that they should conclude by voting hearty thanks to their *President*, Lieutenant-General Docteur *This proposal* was enthusiastically adopted and the labours of the section came to an end.

THE SIXTH SECTION.

This was known as the administrative section, for it dealt with several questions where the intervention of the authorities, either local or central, is indispensable. Here, then, a large number of the official Government delegates congregated. On the first day the question of the care of infants was discussed and Professor BUDIN of Paris contributed an interesting communication on the feeding of infants. At his suggestion the section adopted the following motion :—

> That in the opinion of the section the *feeding of infants* should be a matter of constant solicitude on the part of the authorities and the section expresses [illegible] ible [illegible] young women having terminated their primary education should more especially in schools of domestic economy, receive practical [illegible] from the mother's breast These notices should be distributed at marriages and at the registration of newly-born infants

The next question which occasioned great interest related to the public measures that could be taken to check the spread of tuberculosis Professor BROUARDEL was one of the reporters on the subject and he also spoke urging that the most effective of all measures was to provide the working *classes and the poor generally with more wholesome homes.* Till this is done on a much larger scale than at present the Governments must create or subsidise sanatoriums. Dr. MOELLER of Brussels discussed the means of killing the tubercle bacilli and thought that the prevention of drunkenness would materially help to check the spread of tuberculosis. Dr. PANNWITZ of Berlin, general secretary of the International Bureau on Tuberculosis, also agreed that the great object must be to prevent poverty, whether it be by compulsory insurance, coöperation, or any other means —Dr. SCHMID, director of the Sanitary Bureau of Switzerland, considered that notification should be compulsory and that the public authorities must take action in place of private charity or enterprise when the latter were inefficient Dr. SANTOLIQUIDO, director at the Ministry of the Interior of the Sanitary Services for the Kingdom of Italy, thought that the establishment of sanatoriums was a matter of but secondary importance. It was difficult to tell whether they were of any use from the prophylactic point of view. But it could be irrefutably proved that wherever great sanitary improvements had been effected there the mortality from tuberculosis decreased Professor CALMETTE of the Lille Pasteur Institute was of opinion that the State should set the example in creating sanatoriums. He was also in favour of compulsory insurance so as to check poverty which was the basic predisposing cause Other speakers argued against the sanatoriums, regarding them as a red herring drawn across the path of *sanitation which was the true remedy. Dr A* NEWSHOLME of Brighton gave some account of what had been done in England and was followed by Dr J. F J SYKES medical officer of health of St. Pancras, who showed an excellent diagram illustrating how the death rate from tuberculosis had fallen both in England and Germany when energetic general sanitary measures had been applied M FUSTER explained that in Germany many things were possible since the system of compulsory insurance had provided some £40,000,000. Other countries must find means of raising similar sums. *Professor* JACOB *of Berlin said* that the cost of the sanatoriums in Germany was compensated by the work of the number of persons whom they restored to active life.

Subsequently the discussion degenerated more or less into a contest, especially among the French members, between the partisans and the adversaries of sanatoriums Eventually, however, the section adopted unanimously the following resolution :—

> [illegible] the duty [illegible] the laws [illegible] by means [illegible] means of [illegible] hours of [illegible] should be [illegible]

> [illegible] them to do what good they can according to the sities that characterise each nation.
>
> encourage by all the means at its disposition societies which provide cheap dwellings, coöperative distributive societies and temperance organisations.

The next question raised was that of quarantine and plague. Professor CALMETTE declared that quarantine was quite out of date. The real question was that of the rats and the fleas from the rats. The old-fashioned quarantine did not keep the rats away. Dr. NOCHT of Hamburg said that sulphur did not kill all the rats but it spoilt the flour, tobacco, and tea on board. He preferred oxide of carbon. A very interesting and important discussion ensued during the course of which the big passenger ships were described as cosmopolitan floating cities. It was urged that there should be a medical man on board with a qualification internationally recognised, and that he should be absolutely independent of the owners of the ship.

The inspection of schools was the next subject which came up for discussion and the section carried a lengthy resolution demanding the medical inspection of all schools. But this inspection should not be limited to questions of sanitation and health; it should also deal with the physical aptitude of the pupils and the harmonising of these physical conditions with the teaching given.

The question of the housing of the poor and the reports prepared on this subject were taken on the morning of Sept. 5th. It was maintained that the State should reduce the taxation and the law the cost of transfer when property was acquired for the purpose of providing cheap and wholesome homes for the poor. Nothing of the sort has been done in France. But the new French Public Health Act of Feb. 15th, 1902, compels the local authorities to take measures in regard to the sanitation of such dwellings. On the other hand no regular sanitary service of inspection has been organised. According to Dr. H. ALBRECHT of Berlin there is not in the German empire any special law on the housing question. He thought that it was by constant inspection and police regulations alone that an improvement in domestic sanitation could be obtained. The German local authorities had the power to establish by-laws determining how dwellings should be constructed. It was necessary to encourage the State and the local authorities to build artisans' dwellings and the money accumulated by the insurance funds could be utilised for that purpose. Professor MAHAIM of the Liège University was also in favour of the construction of dwellings by the local authorities. The Belgian law of 1889 gave some fiscal facilities to workmen's building societies and allowed the advance of funds to them from the State Savings Bank. Some 30,000 houses had thus been built and they provided homes for 2 per cent of the population. In regard to sanitation, the burgomaster had the right to close any unhealthy house but in many districts he rarely exercised his power. Compulsory legislation on this subject was needed. Dr. RUYSCH explained that in Holland there were inspectors to visit the houses; the local authorities were forced to make rules for their construction and had the right of expropriation for the purpose of constructing artisans' dwellings.

In the afternoon Mr. A. E. FRANKLIN, delegated by the Mansion House Council on the Dwellings of the Poor, explained what this organisation had done to improve workmen's dwellings in London and pointed out that since the year 1866 sanitary inspectors had been appointed to watch over the internal condition of such houses. He then explained the financial difficulties that beset the question. The section requested Mr. Franklin to write a full report on what had been done in England to house the poor, so that it might be distributed to the members of the Congress. Dr. SYKES followed with an account of the various laws enacted in England on this subject. The section finally adopted a motion stating that the Governments should facilitate the construction of cheap dwellings and their purchase by the working classes. This could be done by special reductions in the taxation of such houses and other financial facilities. Then measures should be taken to ameliorate the condition of existing dwellings, notably by organising efficient sanitary inspection. The principle that the authorities might themselves construct dwellings is also recognised in this resolution.

Mr. FRANKLIN proposed a motion to the effect that it was more important to render wholesome the dwellings now occupied by the poor than to build new houses; that the building of workmen's dwellings was a matter of considerable difficulty and persons of influence should join together to help this movement forward. This motion was also adopted.

On the last day the question of disinfecting dwellings came up for discussion. Dr. VAN ETTINGEN pointed out that there were the disinfection during an illness and the final disinfection after the illness. This required constant surveillance and much propaganda, so that the public might learn to appreciate its importance. Dr. A. J. MARTIN and Dr. ROUX explained what was being done in Paris. The difficulty was to organise a process that could be applied to luxuriously furnished apartments. It was easy enough to disinfect a poor dwelling. In Paris proprietors of houses often asked to have their premises disinfected before letting them to new tenants. Dr. HERMANN of Mons, Belgium, spoke of the practical difficulty of disinfecting houses in rural districts, and M. KIRSCHNER inquired what sort of disinfection was practised after floods, without eliciting any very satisfactory reply. Dr. BUYSSE wanted the disinfecting services to be organised in the same manner as the fire brigades and to act as promptly. Some description was given as to what was done in regard to disinfection in Holland, Italy, England, Roumania, and other countries. The section then adopted the following motion proposed by Dr. MARTIN, chief of the Paris sanitary services:—

> The disinfection of dwellings should only be effected by the employment of such processes and apparatus as have been authorised after very precise experiments made to verify their efficacy. The practice of the disinfection of dwellings in cases of transmissible diseases should be submitted to an administrative and technical control. The conditions of this control should be set forth with great precision.

Another motion was adopted to the effect that a prize should be offered at the next congress to the author of the best process of disinfection applicable to localities where the population is under 3000.

THE SEVENTH SECTION.

The work of this section was confined to hygiene in the colonies, the first subject discussed being the sort of food that was most suitable in hot climates. On this question Dr. IRGNI displayed mistrust of laboratory experiments and thought more time should be devoted to observations and experiments on persons when actually at work, and in this he was supported by Dr. LANGLOIS, while several other speakers denounced the evil effects of the want of variety in the food that is sometimes given. Dr. MAUREL insisted on the necessity of reducing the proportion of nitrogenous food taken in hot climates. Dr. VAN CAMPENHOUT, judging from his own experience, found that it was necessary t eat as much in a hot climate as in Europe. His appeti was quite as good in the Congo as in Brussels. Eventu ally the section adopted a motion to the effect tha it was well not to eat much meat in hot climates, but i rejected a motion that inferred that it was necessary to ea less in the colonies. Dr. CELLI now explained his report o malaria and the efforts made to deal with the mosquitoes He said that a great deal of good had been done by distributing quinine among the workmen. Professor PLEHN o Berlin argued that the great object was to prevent th mosquitoes themselves from being infected. Sir PATRIC MANSON remarked that the land must be drained an curative and preventive methods, both mechanical an medical, must be taught to all persons about to emigrat to a hot country. It would be well before allowing person to go to these countries to make experiments a home so as to see if he was capable of taking large doses o quinine.

In the afternoon of the second day the discussion reverte to the question of malaria and some difference of opinio was manifested as to the efficacy of quinine and arsenic. F instance Dr. PITTALUGA recommended arsenic, quinine, an iron, but Dr. CELLI said that the efficacy of this combinatio would depend solely on the amount of quinine which it con tained. As a result of the discussion it would seem that o the whole the value of the use of quinine depends upon th peculiarity of the individual to whom it is given. A motio to this effect was carried as well as another motion invitin the Governments to agree as to measures to be taken again malaria. Then Dr. FIRKET proposed a motion congrat lating the Italian Government on the humanitarian measur which it had taken to reduce the prevalence of malari This was carried by acclamation. Before leaving this subje I should remark that Dr. VEDY and Dr. BERTRAND, wh practised for some time in the Congo, both bore witness th e of the best preservatives against malaria was to lead an tive life.

After joining with the sixth section to discuss the question f quarantine and plague the seventh section again sat eparately. Dr. CELLI showed by lantern slides the different echanical methods employed in Italy against malaria nd then a discussion was commenced on sleeping sickness. r. VAN CAMPENHOUT explained that different observers did ot agree as to the cause of this malady and concluded that s they did not know the cause they could not know the emedy. Nevertheless, he proposed as a motion that the ick should be isolated, that they should not be allowed to avel, and that when taken ill they should not be sent ome. This was adopted. Sir PATRICK MANSON gave some escription of what British missions had seen in Africa. He greed that the cause was not known though it seemed as the trypanosoma had something to do with it. M. LANCHARD described the experiences of a French mission Africa. They had 15 cases of trypanosomiasis and this eemed to confirm Sir Patrick Manson's opinion. He did t think that Europeans were quite exempt from the danger catching the disease.

Beri-beri was next discussed and Dr. VANDENBURGH of trecht thought that it was caused by monotonous diet and lcohol. Dr. [illegible] thought that it was a polyneuritis caused [illegible], bad food, &c.; in a [illegible] but the consequence of ther diseases. [illegible] the creation of natoriums in [illegible] aside, so that ropeans in [illegible] es where they uld go which [illegible] eatment of the seases which they may contract. Then Sir PATRICK ANSON, quoting observations made by Dr. Hamilton Wright, sisted that beri-beri was an infectious disease of the intesies that could prove fatal within three weeks. The postortem examinations which he had made confirmed this inion and it was evident that fæcal matter was a means of reading the disease. Dr. FIRKET proposed that:—

> In the absence of sufficient and positive knowledge on the origin of e different cases of beri-beri it is necessary that the matter should be re fully investigated. While awaiting the results of such an instigation it would be well to apply strictly to the coloured populans the general rules of hygiene which the experience of colonial actitioners has shown to be useful and more especially those rules at relate to food and lodging.

This motion [illegible]

The section [illegible] cination hot climates, [illegible] d to the cessity of creating schools for the special study of colonial seases and for the training of nurses to help in the colonial spitals. A motion to this effect was carried. Then the ction returned to the subject of vaccination, dealing more rticularly with the difficulty of preserving the lymph in hot imates. In the use of animals it was urged that the [illegible] ld always be respected. [illegible] ion which was proposed by Dr. REYNAUD, and [illegible]

> [illegible] es, such as the impossibility of procuring suitable animals or peated failure in attempting to inoculate animals, recourse may be [illegible] m in urgent cases and when all the [illegible] of small-pox after several passages [illegible] itive inoculation of a susceptible [illegible] stion worthy of experimentation in [illegible]

nother motion, proposed by Dr. VANDENBURGH and conded by Dr. BOREL, was also unanimously adopted. It thus worded:—

> The small-pox [illegible] pilgrimages are ten [illegible] act the tent [illegible] should ek t [illegible] In so [illegible] lations [illegible] entiments of the native [illegible]

VACCINATION EXPENDITURE.—At the meeting of e Axbridge (Somerset) board of guardians, held on pt. 15th, it was reported that during the three years eceding the coming into operation of the new Vaccination ct the payments to public vaccinators and vaccination ficers amounted to £203, while for the three years subsent to the Act coming into force the fees were £932.

TYPHOID FEVER IN BELFAST.

(FROM A CORRESPONDENT.)

Professor J. Lorrain Smith has just presented to the public health committee of the city of Belfast a voluminous report, embodied in a pamphlet of 100 pages, entitled "On the Occurrence of Typhoid Fever in Belfast," which will indeed be anything but pleasant reading for the corporation and the water commissioners, the bodies he holds responsible for the prevalence of typhoid fever in the city of Belfast. For the ordinary citizen it has, indeed, been most unsatisfactory reading to find for some time back one of these bodies blaming the other for the presence of this preventable scourge in Belfast, but Professor Smith divides the responsibility and shows that both bodies have been guilty of dereliction of duty.

At the outset an interesting *résumé* of the general history and character of typhoid fever is given, with an account of the avenues of indirect infection (mainly water) and the conditions of direct infection (the patient himself, and if the discharges from typhoid fever patients could be disinfected and the bacillus destroyed at this point the disease would rapidly cease to exist), and then a very detailed dissertation takes place in reference to the disease in Belfast. Between 1881 and 1888 the annual death-rate from typhoid fever varied between 2·4 and 3·7 per 10,000; in 1889 and 1890 it rose to 7 9 and 7·6. In 1897 it rose to 11·4; in the following year to 18·8; in the next year it dropped to 7·5; and in 1901 it was 9·7 and in 1902 4·7. Why is it that since 1889 the community has suffered from a typhoid fever mortality more than double that of the preceding eight years? In 1888 the main drainage scheme was commenced, and since then a great advance has been made towards cleanliness within the city, and surface pollution (one of the most undoubted causes of typhoid fever) has been enormously reduced in extent in the city, and yet signal failure has been the reward of these efforts—that is, while as a result of these sanitary reforms there has been a distinct fall in the death-rate from zymotic disease other than typhoid fever, that disease has not been affected; in other words, there is a cause of typhoid fever infection at work which has not been touched by any sanitary measure in force. Referring to the question of house accommodation Professor Smith points out that Liverpool had one-quarter and Manchester one-eighth of the Belfast mortality from typhoid fever in the last five years, yet Belfast is not inferior in its accommodation for the working classes to any of these cities. In reference to house sanitation the results of an investigation are given regarding the defects in sanitation which existed in five areas in different districts of the city, which are appalling and confirm all the statements made by the special commissioner of THE LANCET in reference to his visit to Belfast several years ago. In one district 33 per cent. of the drains were defective, in another 32, in another 47, in another 37, while in one actually 73 per cent. of the drains were defective. No wonder Professor Smith remarks "that a very large amount of improvement remains to be carried out before the sanitation [illegible] state." It is [illegible] authorities to [illegible] ses were built about eight years ago 37 per cent. of the drains are defective and the general result of the whole investigation is that about half the drains are defective." The reform in progress of substituting water-closets for privies is proceeding too slowly. "There still remain nearly 10,000 to be dealt with." The sanitary defects which have been revealed all more or less contribute to the conditions which make it easy for typhoid fever to find a footing in the city and while they remain, Professor Smith says, we cannot expect that degree of freedom from disease which ought to exist, but he thinks there is no evidence from the investigation of these experimental areas to show that the peculiar burden of typhoid fever which is laid upon the city is due in the first instance to these defects. In reference to direct infection Professor Smith points out how unsuitable a very large number of houses in Belfast are for the treatment of typhoid fever patients at home, but what can be done when, as quoted by Professor Smith, the medical officer of health of the city states in his report for 1901 that there is no city in the three kingdoms where the hospital accommodation is so limited as in Belfast and, notwithstanding constant attention having been called to the matter, there is even yet no city fever hospital. In 1901 there were 2530 cases of typhoid fever notified, and in addition 1351 cases of "continued fever," and yet there is no municipal fever hospital. No wonder Professor Smith says "its immediate erection is most urgently demanded." The only available place is the workhouse fever hospital and if patients are to go there "the arrangements should, if possible, be made such that all classes of society would readily avail themselves of it."

Dealing next with the question of the water-supply Professor Smith says :—

> We have then before us these facts: (1) a catchment area imperfect in type at Woodburn, much deteriorated since it was acquired; (2) an added area at Stoneyford which began to supply water after the autumn of 1888 of the same general type as that of the Woodburn district but inferior; (3) the presence of typhoid in both areas, but especially in Stoneyford, and there especially in recent years; (4) no proper means for dealing with cases of typhoid when they occur or with the general sanitary conditions of the catchment areas and a considerable amount of resistance to being disturbed for the sake of sanitation on the part of the inhabitants.

He finally sums up the question as follows. In 1889 there was a general outbreak of typhoid fever over the whole of Europe. Belfast in that year suffered to a very large extent and since then has never been able to shake off the disease. To get rid of typhoid fever (1) the soil must be kept pure in the neighbourhood of the house, and especially by cleansing the surface from all fæcal contamination; (2) the water-supply must be purified, not only by filtration of polluted waters, but by the prevention of pollution; and (3) cases of the disease as they occur must be removed to a fever hospital so as to prevent the direct infection due to treating typhoid fever patients in unsuitable houses. Sanitary defects in the city should be made good but these measures will not be successful in preventing typhoid fever unless at the same time the sanitation of the catchment area is remodeled. Professor Smith favours the developing of the Mourne scheme of water-supply and thinks that owing to the risks of pollution at Stoneyford no preventive measures adopted there would give the same promise of security as the adopting of the Mourne water as the primary supply of the city. To stamp out typhoid fever the disease should be attacked in the manner which Koch recommends—that is, each case as it occurs should be removed to hospital and a thorough search should be made amongst those who live in the same houses as the patients or who have come into contact with them for any signs or symptoms of illness. All cases showing even the mildest disturbance of health should be carefully treated until they can be pronounced free from infection. Finally, Professor Smith makes the following recommendations :—

> 1. Increased effort on the part of the public health authorities is required in order to remove the sanitary defects which exist in a large proportion of the houses, and special efforts should be made to control surface pollution, leaky drains, and defective privies, and ashpits should be abolished. Greater care should be exercised in testing the drains of new houses. Defective sewers should be repaired or reconstructed. The drains and sewers of new streets should be in satisfactory working order before occupation of the house is permitted. The streets and back passages should be constructed so that thorough cleansing can be carried out. Uncleanliness in the house and unsanitary habits should be restrained by every available means, and the sanitary officers should have some effective way of enforcing measures for this purpose.
>
> 2. That the Municipal Fever Hospital should be erected with the least possible delay and every effort should be made to extend the practice of treating typhoid cases in hospital. An attempt should be made, if possible, to remove the prejudice which exists in the community against the use of the present fever hospital, so that patients from all classes of society might take advantage of it.
>
> 3. The attention of the Public Health Committee should be given to the subject of latent and ambulatory forms of typhoid fever and to the milder forms of the disease occurring among children. Without waiting for the scientific exposition of the difficult problems presented by these conditions much good might be done by the isolation of cases as far as possible. Cases of simple continued fever should also be dealt with in this way.
>
> 4. The sale of [illegible] ould be regulated so as to prevent those taken [illegible] he lough being used for food.
>
> 5. [illegible] an effort should be made to induce the publ [illegible] those districts from which milk supplies are drawn to introduce regulations regarding cowsheds and the handling of the milk.
>
> 6. More stringent regulations regarding the keeping of pigs in the city should be introduced.
>
> 7. The sanitation of the catchment areas of the older water-supply should be thoroughly reorganised so that the commissioners should have sufficient power to deal with (*a*) general pollution of the streams; (*b*) the stamping-out of typhoid fever, which is endemic in Stoneyford; and (*c*) the treatment of typhoid cases by isolation.
>
> 8. The water commissioners should as soon as possible convert the Mourne area into the primary source of water-supply for the city.

The report, which is a very valuable one, conducted [illegible] thoroughly scientific and practical way, is a serious [illegible] peachment of two public bodies, the corporation of Bel[illegible] through its public health committee and the water c[illegible] missioners. Many of the recommendations were imbodied [illegible] a report of a special committee of the corporation held [illegible] 1896 ("The Harrison Report"), but owing to the [illegible] expense to the city and expense to the property owners [illegible] much has been done. I am sure that the water [illegible] sioners will do their best to adopt Professor Smith's [illegible] tion to make the Mourne scheme the only one for the [illegible] but I am sorry to have to confess that I have not so [illegible] faith in the health administration of the corporation. B[illegible] from a public health point of view is really almost a qu[illegible] of a century behind any English city of half its size. [illegible] a city with a population of 350,000 with such awful sanit[illegible] defects as Professor Smith points out, with about half [illegible] drains defective, with 10,000 houses still without wat[illegible] closets, with no city fever hospital, with a main draina[illegible] system so utterly inadequate to the present size of the c[illegible] that in times of very heavy rain portions of Belfast are inu[illegible] dated, and with the sewage discharged into the beauti[illegible] lough instead of being carried far out, so that the residenc[illegible] of those on each side are polluted with an abominab[illegible] miasma according to the direction of the wind which blo[illegible] over the sewage infected water. Again and again the lo[illegible] press has tried to get some reforms carried out, t[illegible] medical journals, and notably the special commissioner [illegible] THE LANCET, have pointed out the utterly absurd positi[illegible] which Belfast occupies from a public health point of vie[illegible] and yet the public authorities seem to be callous an[illegible] impervious to all criticism, apparently quite conten[illegible] that Belfast should become a by-word and be branded a[illegible] a plague-spot. A new city surveyor has just been appointe[illegible] and if with him there was associated a thoroughly energeti[illegible] and efficient man who has had experience as an Englis[illegible] officer of health they might between them do something, provided they got a free hand, to carry out th[illegible] reforms suggested by Professor Smith; but they will hav[illegible] a heavy task to correct the results of bygone jerry-building[illegible] to prevent flooding, and to purify the city sewage. Th[illegible] labours of Hercules were mild in comparison with wha[illegible] they will have to do in the Augean stable of Belfast.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Slow Progress in Sanitary Matters in India.—Sor[illegible] Difficulties of Vaccination.—The Plague Epidemic.

FEW people at home realise "what an immense amount [illegible] work there is to be done in sanitary matters in India; wh[illegible] an immense amount of labour has to be expended in scheme[illegible] explanations, and suggestions before any improvement com[illegible] within measuring distance of serious contemplation; wh[illegible] apathy, slackness, and ignorance on the part of both officia[illegible] and populace have to be overcome; and finally, how litt[illegible] can be actually accomplished for want of money." The[illegible] remarks upon a recent sanitary report may be aptly applie[illegible] to the Santipur municipality which, after several yea[illegible] "cautioning," has been superseded by order of the Gover[illegible] ment. Here is a town of some 30,000 people whi[illegible] has been governed by a municipality of natives. In 1895 t[illegible] sanitary commissioner brought to notice that the night-s[illegible] was received in "well privies," of which there were abo[illegible] 4000. Nothing was done until 1898 when the municip[illegible] commissioners asked for further powers but withdrew th[illegible] application. All this time the water-supply was bei[illegible] contaminated by these cesspools. In 1899 the Lieutenan[illegible] Governor refrained from exercising his summary powe[illegible] because the rate of mortality in the town was not excessiv[illegible] The floods of 1900 caused an outbreak of cholera, but st[illegible] nothing was done except the writing of reports and reco[illegible] mendations. In 1901 the town was again inspected and t[illegible] water-supply was found to be highly contaminated. Final[illegible] last May these municipal commissioners practically refus[illegible] to do anything. Now after all these years the Lieutenan[illegible] Governor finds that the municipal commissioners ha[illegible] persistently made default in the performance of th[illegible] duties and have proved themselves incompetent and dire[illegible] that they be superseded. But for how long? For only o ar The decision is simply astounding What improve ent can the local official of the Government be expected accomplish in one year and what a farce it will be to hand er again the sanitary administration of the town to a nilarly constituted body of men The craze for giving presentative municipal government to the natives started me 30 years ago and has been shown times without number be absolutely disastrous to sanitary progress, but the activity of the Government against such scandals as the ove calls forth more comments from a visitor to India than e supineness of the native commissioners

Owing to the unsatisfactory vaccination returns in the city Calcutta during the past year important charges are con mplated In 1902 hospital assistants replaced the old ccinators, but they have proved too "high" for their work, id now it is proposed to have several inspectors with a ifferent class of men as vaccinators The four female ccinators for the whole of Calcutta are to be continued accination has also suffered in the Punjab In the plains, here plague is well known, vaccination continued as before it in the hill districts the people feared that under the esence of vaccination they would be subjected to anti ague inoculation

The plague mortality throughout India has again advanced 58 deaths being recorded for last week Of this number 87 occurred in the Bombay Presidency 798 in Central dia 487 in Mysore, and 345 in Hyderabad In Bombay ty the disease shows signs of re development and ominous ports come also from Calcutta. Ootacamund continues to port cases

Sept 4th

BIRMINGHAM

(FROM OUR OWN CORRESPONDENT)

Health of the City

AT the commencement of the course of instruction in giene given each year at the Midland Institute it is the istom for the lecturer to give a public address on some bject connected with health The present lecturer is Dr Wright senior assistant in the anatomical department of e University of Birmingham, and on various occasions he s given valuable public lectures in connexion with the asses at the Midland Institute This year his subject was at of Tuberculosis and the lecture, which was intended r the general public was illustrated by lantern slides e chair at these lectures has generally been taken the chairman of the health committee of the corporation, who takes the opportunity of making a public statement as to the health of the city during the preceding velvemonth On this occasion Alderman Cook was as ual, in the chair Referring to the death rate he ated that up to the end of August it was 16 6 per 00 of the population, this being the lowest on record he rate for the corresponding period of last year was 18 1 d the average for the five preceding years was 20 0 limatic conditions had no doubt been favourable but a con derable part of the reduction in the death rate was directly e to the great improvements which had been made in the nitary conditions of the city Should there be no bad out reak in Birmingham this year they would have a lower eath rate than even they had had last year If they took e zymotic diseases all round they had every reason to be ratified at the improvement which had taken place At esent an outbreak of small pox in Birmingham was tracting a good deal of attention They had ten cases ow and they were directly traceable to one case which was nt into Birmingham from an outside district

Small-pox in Birmingham and Burton

As will be observed from the remarks of the chairman of e health committee of Birmingham the period during hich the city has been free from small pox was very brief nd a fresh batch of cases at present few in number, has ow been reported At Burton on Trent a local medical an has recently been summoned for failing to notify a case small pox. It was shown that the patient when visited y the medical officer of health was covered with the dried p crusts of the pustules of small pox from head to foot ince this case there have been 18 others in the borough lone and 16 were directly traceable to the case in question he defence was that the medical man had made a diagnosis of impetigo and that he had only been guilty of an error of judgment In cross examination the accused medical man admitted that he had once previously received a warning from the medical officer for not notifying an infectious case In the end a fine of £2 with £3 7s 6d costs, was inflicted

New Lunatic Asylum for Worcestershire

Before very long it will be necessary when summing up the population residing on the Lickey Hills, close to Birmingham, to speak of them as "mostly lunatics" for the hills are already occupied by two huge asylums, one at Rubery and another at Hollymoor, belonging to the corporation of Birmingham and now within a few miles of them is being erected a third asylum for the county of Worcester, as was recently stated by one of your correspondents The asylum at Powick, near Worcester, which has accommodation for 1060 patients only, has been for some years sorely over taxed The administrative departments of this institution which was opened in 1852 being far too small it was not considered advisable to attempt an extension of the old premises but rather to erect a new building upon another site Accordingly the Barnsley Hall property on the Lickey Hills was purchased some years ago by the county council for the sum of £17 000 This estate lies about one and three quarter miles north of Bromsgrove and is easily accessible from all parts of the county The plans for the new asylum which have been prepared by Mr G T Hine of We ble of contain ing with administrative offices sufficient for an extended asylum for from 1000 to 1200 patients In addition to the patients' wards the institution will contain a large recreation hall, kitchens and offices quarters for nurses and attendants, workshops, laundry buildings, and also offices for the visiting committee and staff, together with accommodation for assistant medical officers The detached buildings comprise a chapel with sitting accommodation for 420 persons, a residence for the medical superintendent an isolation hospital for the treatment of infectious disease, eight cottages for married attendants and an entrance lodge Careful attention has been paid to the provision of fire apparatus and means of escape in case of fire The asylum will be only two storeys high and all over it will be fire hydrants, in the use of which the attendants will be instructed The windows are of special design to permit of easy exit and in addition there are stone fireproof escape staircases and sliding iron doors to prevent the spread of any outbreak. The buildings will be lighted by electricity generated in the engine house Water is procured on the estate from two bore wells already sunk to a depth of 350 and 341 feet respectively The water, which is stated to be of excellent quality, has risen to within 26 feet of the ground level It will be pumped from the wells into a tower and thence conveyed by gravitation throughout the buildings The available supply from each bore hole is 7000 gallons per hour Rain water for use in the laundry and boiler house will be collected in a large underground tank capable of containing 150 000 gallons The estimated total cost of the erection furnishing, and equipment of the buildings omitting the cost of the site, is £215 887 The contract for the buildings amounts to £151 475 the cost of the boilers and heating apparatus is £10 412 the cost of the wells is £950 the electric light installation is estimated at £6000, while £2500 are required for the construction of roads Professional charges, which include £8700 for the architect amount to £12 300 The cost of furnishing and equipping the asylum with 570 beds, at an estimated expenditure of £25 each is £14 250, and £3000 are to be expended in the laying out of the ground gardens, airing courts &c, and planting The amount of the estimates for building shows an average cost of £325 per bed for 570 beds At the stone laying, which took place a few days ago Alderman John Bowen chairman of the visiting committee presided and the ceremony was performed by the Earl of Coventry After the stone had been laid lunch was served in a temporary pavilion near at hand

New Infirmary at Stratford on-Avon

A new infirmary for women, which will accommodate 33 patients was opened recently at Stratford on Avon The building and equipment have cost about £4000 At the ceremony, which was performed by Mrs Couchman of Henley in Arden, the chairman of the board of guardians said that some people were of opinion that the board spent money recklessly but that was not the case In 1890 the guardians raised by loan £1500 for the building of new tramp wards, slight alterations to the old infirmary cost £750, and they had borrowed £4700 for the new infirmary, but he was pleased to say they had not spent all that sum. On the laundry and engineering work they had spent £3582, bringing the total of loans to nearly £11,000. But the money borrowed was on varying terms from 25 to 30 years, and the annual repayment came to £337. At present a penny rate in the union produced £421, so that it could not be contended that the guardians had seriously burdened the rates.

Suicide of a Medical Man at Walsall.

A sad event occurred recently in Walsall in the suicide by hanging of Mr. Merson, a surgeon, aged 52 years, who was at the time medical officer to the Walsall Friendly Societies Medical Aid Association, a position which he had occupied for about four years. At the inquest the jury returned a verdict of "Suicide during temporary insanity produced through overwork," and they desired their sympathy to be conveyed to the widow and family of the deceased.

Sept. 22nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Inspection of Corporation Hospitals.

IN the civic economy of any community there is no more important work than that involved in combating disease and in no place in the kingdom is there a more cordial recognition of this than in Liverpool. Hence the annual committee inspection of the civic hospitals is invested with more than a passing interest. Early in the forenoon the City Hospital North, Netherfield-road, was visited; the committee then visited the Priory-road Hospital, the Fazakerley Hospital, the City Hospital East (Mill-lane), Parkhill Hospital, and the City Hospital South, Grafton-street. To complete this round a full long day was required. In each case the greatest possible satisfaction was afforded by the condition in which everything was found. Special interest centred in the Fazakerley scheme. In 1898 a magnificent site, comprising 120 acres, was purchased at Fazakerley. At present hospital accommodation has been provided on it for 150 patients. To the northward of, and some distance from, the existing hospital, on the same site, it is intended to erect a fine hospital to accommodate 300 patients at a cost of £130,000. The new premises will consist of nine ward pavilions and four isolation blocks, in addition to administrative block, kitchen block, nurses' home, laundry, and dispensary. This Fazakerley scheme, when completed, will place Liverpool in a unique position so far as hospital accommodation is concerned. Luncheon was served at the Parkhill Hospital. Alderman Dr. Thomas Clarke, chairman of the port sanitary and hospitals committee, presided, and amongst others were the Lord Mayor, members of the committee, Dr. E. W. Hope (the medical officer of health), Dr. A. A. Mussen (assistant medical officer of health), Dr. N. E. Roberts, Dr. R. I. Richardson, Dr. R. S. Archer, the visiting physicians to the hospitals, and other corporate officials. The chairman, in proposing the toast of "The City Hospitals," expressed his own and the committee's appreciation of the extremely valuable and enthusiastic services rendered by every individual connected with the administration of the hospitals During the past year they had increased the hospital accommodation by 200 beds, and when the new hospital at Fazakerley was completed in about two years' time they would be in a position to deal not only with the usual incidence of infectious disease, but with any ordinary outbreak that might occur in Liverpool. Dr. Hope, in returning thanks on behalf of the staff, said that during the years of Dr. Clarke's chairmanship of the committee more than 30,000 patients had been treated in the city hospitals, the vast majority of whom had been restored to their friends, and he had been the recipient of gifts of money, pictures, and books for the use of the hospitals as a mark of gratitude from many patients.

Low Death-rate of Liverpool.

At the weekly meeting of the health committee of the city council, held on Sept 17th, attention was called by the chairman to the comparatively low death-rate of the city which was equal to a yearly average of 19·2 per 1000 of the inhabitants. Commenting on the fact, Dr. Hope (the medical officer of health) said that they conduct one of the lowest rates of mortality in his recollecti late rainfalls had had an excellent effect on the condition of the city by way of cleansing the roads, and the drains, and notwithstanding epidemic of small-pox the death-rate was lower been for years.

University of Liverpool.

The inauguration of the winter session of the faculty of the University of Liverpool will take Thursday, Oct. 1st, when the introductory address delivered by Sir Dyce Duckworth, physician Bartholomew's Hospital, London, who will also d the prizes to the successful students of the facult University buildings will be open for inspection public. It is requested that academic dress be the ceremony.

Sept. 22nd.

WALES AND WESTERN COUNTIES N

(FROM OUR OWN CORRESPONDENTS.)

Water-supply of the Rhondda Valleys.

THE provision of an increased water-supply Rhondda valleys has been under the consideration urban district council for many years, but there ap be at last some prospect of definite action being take matter. Broadly speaking, about one-half of the houses in the two valleys are supplied by the Pon waterworks company which has reservoirs with a capacity of 220,000,000 gallons at the head of the valley. The average yearly rainfall over the ga grounds which feed these reservoirs is 55 inche if the peaty water could only be efficiently there would be very little reason to compl the supply to this portion of the district. Most remaining 10,000 houses receive their supply from owned by the sanitary authority which only possesses ever, reservoirs for storing some 7,000,000 gallons works was purchased by the district council in 1898 private company consequent upon a successful action b by the council against the company in 1895 under Sect of the Public Health Act, 1875, on the ground th company was unable or unwilling to provide a and efficient supply of water to the district. withstanding the fact that eight years have since the council came to the conclusion th increased supply was necessary and although ther been at least 2000 new houses erected and occupied the same period it was only on Sept. 11th last that decided to construct a new reservoir to hold 104, gallons at the head of the great valley at an estimat of £32,000. Although the adjoining gathering covers only 120 acres there is an average annual rai about 70 inches. Alternative schemes to that whi been adopted included the sinking of wells below t measures and tunnelling through the mountain to t of Neath, whence it was proposed to pump water by el power from a large lake into the existing small res As water carriage is almost universal in the Rhondda it is evident that the provision of an abundant su water is a question of the gravest importance inhabitants of the district.

A Cottage Hospital for Tredegar.

The foundation-stone of a cottage hospital was Sept. 14th at Tredegar (Mon.). The building is to be in a public park recently given to the district coun will include a ward for nine patients, two private wa operating-room, nurses' and medical officer's rooms, a bedrooms for nurses and servants. The total cost institution is estimated at £3500, towards which sum have already been subscribed. The workpeople emplo the district are extending very generous support building fund.

Water-supply of Caerphilly.

The medical officer of health (Mr. T. W. Thomas) urban district of Caerphilly, a rapidly increasing c district in Glamorganshire and adjoining Monmout has over and over again during the past few years call attention of the sanitary authority to the inadequate in portions of the [illegible]. In connexion with a outbreak of typhoid fever Mr. Thomas recently that some of the water supplied to the infected *ras obtained from a brook* at the upper end of which n where 18 cows, pigs, &c., are kept and where there sspool which could easily overflow into the brook. ly filtration to which this water is subjected is by it through a strainer consisting of a piece of tin or te in which had been punctured several holes large to admit an ordinary lead pencil. The supply from rce appears now to have been discontinued, but the ants have been advised to boil their drinking water ıse.

A Difficulty under the Notification Act.

e meeting of the St. Austell (Cornwall) rural district held on Sept. 18th the medical officer of health l that he had visited the coastguard buildings at Haven where two cases of scarlet fever had been . He was, however, refused admission and was d by both the chief officer and chief boatman that ere thereby acting in accordance with their printed ions It was eventually agreed to write to the ty on the subject, the clerk remarking that as the ard buildings were Crown property he did not think e medical officer of health had a right of entry, but it for the chief officer to notify the illness admit the medical officer of health.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

oyal City of Dublin Hospital: Resignation of Sir George F. Duffey

he last meeting of the board of the Royal City of Hospital a letter was read from Sir George F. M.D., resigning the office of physician to the l which he has filled for over 21 years. It was ıously resolved :—

ir George F. Duffey's resignation be
nd that the directors desire
hy with him in the present
hope that with time and res
sh to place on record their gr
endered to the hospital and t
lisplayed in the discharge of his duties during the long period
rs—in which he has so ably filled the post of visiting phy-
the hospital.

same time a motion was also unanimously passed ng the deep sense of the directors of the hospital of s which the hospital had sustained in the death of e Mr. Henry Gray Croly who for the long period years worked so successfully and devotedly in its ts.

The Omagh Guardians and their Medical Officer.

conflict between the Poor law guardians and their l officers continues. At a meeting of the Omagh ans held on Sept. 19th Mr. G. Murnaghan, M.P., in the chair, a letter was read from Mr. A. M. Lowe that he was unable to obtain a substitute to act for r £2 2*s*. per week and respectfully asking the board onsider the question of the payment of his substitute. er was read from Dr. E. C. Thompson, M.P., stating e had advised Mr. Hunter, of Carrickmore Dispensary, se work for at least four weeks owing to the pre- s condition of his health. Mr. Duncan, the relieving said that he had approached two other medical the district, but both said that they would up the duties. Moreover, it was essential ld be a medical officer in Carrickmore airman and guardians decided to leave the ands of the relieving officer in order to terms he could from medical men. The aited with interest.

n for Infectious Diseases in Belfast.

THE LANCET of Sept. 19th, p 853, reference is to an interview between a deputation from the Royal ia Hospital and the Belfast city council on Sept 1st then suggested that in order to get over a difficulty as arisen through the city fever hospital not being yet the corporation should take the old Royal Hospital and as a fever hospital for patients of the middle classes until the new building was ready. The matter was left to the public health committee, which approached the Poor-law guardians to relieve it from the *impasse*, and it was suggested that under the provisions of the Local Government (Ireland) Act, 1898, the guardians should convert the workhouse fever hospital into a district hospital, with the result that fever patients of the class formerly admitted into the old Royal Hospital could be treated in this district hospital, the control of which would be under a joint board of the guardians and corporation, the corporation being financially liable for maintenance to a certain extent. The real difficulty is to make a provision for a temporary period of three years until the new infectious diseases hospital is ready. At a special and extraordinary meeting of the guardians held to consider the question on Sept. 18th it was, after a prolonged discussion, decided by a large majority (13 to 4) "to take no action in the matter," the reasons which influenced the majority in coming to this verdict being: 1. That the duty of the Poor-law guardians was to provide for the poor and destitute. 2. That it lay with the corporation to provide the temporary accommodation for fever patients of the class described until the new hospital was ready at Purdysburn. One of the guardians pointed out that the Public Health Act was passed in 1878, and that under the 155th section of that Act the corporation was empowered to provide, either by building or by acquiring a hospital, for the treatment of those cases. "It was now," he said, "1903 and during the whole of that period—25 years—no practical step has been taken by the Belfast corporation to carry out the powers vested in it." It is, however, fair to the Belfast corporation to say that the Infectious Diseases Notification Act was not adopted until March, 1897, and that their new infectious diseases hospital has just now been begun. 3. The nt £2000 to provide spec (such as those who went to the old Royal Hospital), making a special entrance for them (so as to do away with the sentimental objection against the workhouse fever hospital), and yet it was a complete failure and loss financially, the only paying patients who entered being two policemen. 4 That while at present, fortunately, there were only 106 cases in the workhouse fever hospital, with room for 200 more, yet experience had shown in the case of epidemics that there might not be sufficient accommodation. During the last great outbreak of typhoid fever other buildings besides the union fever hospital proper had to be cleared out to provide for the poor. The public health committee will now have to reconsider the situation. It is, however, extraordinary that the committee did not ascertain beforehand that the guardians would not agree to this plan of trying to convert a workhouse hospital into a district fever hospital; moreover, even if the scheme had worked on paper it would have been practically a complete failure as the patients to be provided for who are willing to pay a little will in no circumstances the class they come from, enter sure that the board of manageme will meet the city authorities in if it takes over that institution it will have ample room for fever patients of the middle classes, and it will gain an experience as to the working of such an institution which will be of the utmost assistance to it, when in three years' time the new infectious diseases hospital will be built and ready to receive patients.

Sept. 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Pensions for Soldiers' Widows.

THE Minister of War ar come to a decision upon widows which modifies Formerly the law provided that if the wounded man died after he had recovered sufficiently to go back to duty or if he lived for more than a year after the reception of his wound, then his widow would have no right to a pension. This was manifestly unfair, for everyone knows that a wounded man may recover sufficiently to go back to duty and yet may die at a much later date from the effects of his wound. The old law which is dated July 2nd, 1831, is now rescinded and the following takes its place.

A wounded man who is not considered as recovered within the lapse of one year from the receiving of his wound shall obtain a certificate from the military medical authorities to the effect that the results of his wound are still manifest. This certificate must be renewed year by year. The medical man who attends the patient at the time of his death must give a certificate to the effect that the wound was the primary (*directe*) cause of death. All medical certificates must be signed by legally qualified persons. The widow of a wounded man who dies at a period of over one year from the date of the last medical certificate shall have no right to a pension.

A Memorial to Professor Charcot.

A memorial to the late Professor Charcot was unveiled on Sept. 20th at Lamalou-les-Bains, a thermal station which owes much of its prosperity to Charcot who was fond of sending ataxic patients there. The memorial consists of a bust from the chisel of Madame Charcot. The bust stands on a pedestal adorned with bas-reliefs representing a patient and Charcot giving a demonstration. The Minister of Public Instruction and the Minister of Commerce presided at the fêtes set on foot for the occasion and a large number of medical men were present owing to the excursion to the French mineral watering-places, organised by Professor Landouzy, being at Lamalou at the time.

The Plague at Marseilles.

As I said in my last letter, the little outbreak of plague at Marseilles is over. In all there were seven deaths, but the administration only count five, for the first two were not verified by bacteriological examination. The virus must have been very feeble, for no case occurred in the town except among the workmen infected at the factory. This factory is situated in a suburb of Marseilles, some three kilometres from the town itself, and this suburb has no sewers. Therefore the rats infected in the factory could not spread to Marseilles by means of the sewers and thus infect the town. The municipal authorities, helped by Dr. Chantemesse, have worked admirably. An inquiry is to be opened as to the route by which the infected rags obtained entry and also as to what ship brought them.

Sept. 22nd.

Obituary.

JOHN EDWARD BOYTON, M.R.C.S. ENG., L.A.H. DUB.

THE death of Mr. J. E. Boyton on Sept. 4th removed the oldest inhabitant from the town of Watlington, Oxfordshire. He was also thought by some to be the oldest surgeon in practice in the kingdom. He was born in April, 1816, and was therefore 87 years and six months old. He was admitted a Member of the Royal College of Surgeons of England in 1838 and became a Licentiate of the Apothecaries' Hall, Dublin, in 1839. He started to practise in Watlington about 61 years ago. He at first held the two appointments of medical officer to the Thame and Henley unions but subsequently gave up the latter. He was married in 1853 and leaves a widow, three sons, and two daughters. The sons are following in their father's footsteps in the medical profession. He was the medical officer of eight friendly societies in the neighbourhood, surgeon to the Great Western Railway, a certificated factory surgeon, and an honorary medical officer to the Watlington Cottage Hospital. He was also vice-chairman of the parish council, a life trustee of the Watlington public charities and the foundation scholarship, a director of the Lecture Hall Company, a member of the Horticultural Society, and a musician of no mean order. He was a Churchman and a strong Conservative and also a Freemason. He has been described as a remarkable character of the old English type, blunt, open, and to the point in his remarks, a great reader, and always up to date in his profession. Mr. Boyton was the son of Captain James Boyton, late of the 63rd regiment, and his grandfather, who lived to be 99 years and six months old, was also in the army.

WALTER SUMPTER, M.D. ST. AND., L.S.A.

ON Sept. 9th there died at his residence at Cley-next-the-Sea, Norfolk, Dr. Walter Sumpter in his seventieth year. His health had been failing for some time and he had recently undergone an operation. He was born Sunbury, Middlesex, though his family had ties with the counties of Norfolk and Suffolk, educated at University College and University pital, London, where he qualified. He afte obtained the degree of M.D. at the Un Andrews. He practised for a short time at Lincolnshire, and in 1858 went to Cley as Mr. Corbet J. Cooke, medical officer of the E Walsingham unions. This gentleman died Dr. Sumpter's arrival and Dr. Sumpter up the practice. He obtained several ments, amongst others those of district to the Erpingham board of guardians and Admi and agent for the district. He had also an ext tice and was generally liked. The deceased great interest in the advancement of the of the working classes. He was a thorough and was fond particularly of hunting, cricket, and bowls; in fact, he was a keen all outdoor exercises. He was also keenly superintending the life-saving work of the north Norfolk coast. He leaves four sons, three of medical practitioners, and three daughters to loss.

DEATHS OF EMINENT FOREIGN MEDICAL deaths of the following eminent foreign medical announced:—Dr. Muravieff, *privat-docent* of the University of Moscow.—Dr. Matheus dos fessor of hygiene in the University of Bahia.

Medical News.

UNIVERSITY OF DURHAM.—At the ex for the Degree of Bachelor in Medicine held in the following candidates satisfied the examiners:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry, and Ph Ernest Hanna, James Wilkie Smith, and Leslie He College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—Ronald Martyn Davies, College Newcastle-upon-Tyne; Lionel Knipe Elmeades, Guy' London; George Reginald Ellis, College of Medicine, upon-Tyne; John Everidge, King's College, Londo Llewellyn Forster and Elizabeth Niel Havelock, Medicine, Newcastle-upon-Tyne; Thomas Harold V Guy's Hospital, London; Herbert Max Levinson and St Metcalfe, College of Medicine, Newcastle-upon-Tyn Davidson Miller, M.R.C.S., L.R.C.P., St. Thomas' London; Charles James Neilan, Edward Davison Smi Bewlay Stephenson, and George Walker, College o Newcastle-upon-Tyne; and John Franklin Young, Guy London.

Anatomy and Biology.—Hubert Cyril Willoughby Allo Percival Hearne Joynt, and Herbert Fletcher Joynt, Gu London; and Robson Ethelbert Isaac Mason and Jo College of Medicine, Newcastle-upon-Tyne.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—First-clas Lewis Augustus Clutterbuck, L.R.C.P. & S. Edin., College [illegible] Second-cla Vincent [illegible] Lambert, Fre Pybus, [illegible] ichard Woodw College [illegible] yne. Pass L Edward Peckett Davis, George Denholm, Horsley Sampson George Victor Harris, M.R.C.S., L.R.C. Walter Nicholas Johns, Arthur Cecil Hays McCulla Robert Philipson, Norman Spedding, James Burrell and Thomas Leathard Wormald, College of Medicine, upon-Tyne.

FOREIGN UNIVERSITY INTELLIGENCE.—*(French Faculty):* Dr. J. Calmette of Montpellie appointed to the chair of Therapeutics and H succession to the late M. La Bonnardière.—Dr. W. O. Risel has been recognised as *privat* Pathological Anatomy.—*Moscow:* Dr. Serbski, of Neurology and Psychiatry, has been promot Extraordinary Professorship.—*Naples:* Dr. G. C been recognised as *privat-docent* of Ophthalmol *Petersburg (Military Medical Academy):* Dr. S. J. has been recognised as *privat-docent* of Bacteriolog

VACCINATION GRANT.—Dr. S. J. J. K received the Government grant for efficient vacc the Fressingfield district of the Hoxne Union.

XETER AND DISTRICT HOSPITAL SATURDAY —The committee of this fund has recently made the al awards for 1903, which include £170 to the Devon Exeter Hospital and £75 each to the *Dispensary and Infirmary*. The sum of £45 was divided among the er medical institutions.

RESENTATIONS TO MEDICAL PRACTITIONERS.—Dr. mpson Campbell, who has resigned the office of superdent of the Ochil Hills Sanatorium, has been presented a gold-mounted cane and a smoker's companion. The les bear the inscription: "To Dr. Thompson Campbell, Friends and Patients at Ochil Sanatorium. 31st August, "—An engraved tea-tray and a purse containing £134 presented to Dr. J. B. Montgomery, J.P., at the West wall Infirmary on August 26th. The tray bore the wing inscription: "Presented to James Barclay Montery, M.D. Glasg., F.R.C.P. Lond., in recognition of ears' gratuitous services as physician to the West wall Dispensary and Infirmary, 1853-1903"—Mr. y Newell, L.R.C.P. and L.R.C.S. Irel., on leaving borough, Sussex, where he had been in practice for ears, was presented by his numerous friends and patients a silver tea and coffee service and an address on vellum. staff of the Sheffield Cleansing Departments have pred Dr. John Robertson, medical officer of health, who is ng Sheffield, with an engraved silver cigarette case.

ITERARY INTELLIGENCE.—Messrs. J. and A. chill announce for early publication a new (the sixth) on of Dr. A. L. Galabin's "Manual of the Diseases of len." The work has been gr

as many illustrations as in

The same firm has also in

H. Jellett's well-known books on Midwifery and Gynæcgy. The latter will be about twice as large as re and will be fully illustrated.—Messrs. Baillière, all, and Cox will publish during the next few days he Health of *Armies in the Field*," by Surgeon-Major lwell, a record of whose extensive experiences in South ica, India, *and elsewhere should prove useful* in future npaigns. *Also* "*The After-treatment of Operations*," by P. Lockhart Mummery, F.R.C.S. Eng.; an illustrated lbook of "*Diseases of the Ear*," *by Richard* Lake, C.S. Eng.; "Home Nursing," by Dr. Bernard Myers; a new edition of Mr. Mayo Robson's "Diseases of Gall-bladder and Bile-ducts." *New editions* are also in ers of their Students' Aid Series in "Surgery," ysiology," "Chemistry," and "Hygiene."

ONATIONS AND BEQUESTS.—Under the will of Richard Hawkins of Dublin *King Edward's Hospital* l for London receives a legacy of £10,000 and the City Dublin Hospital and the Hospital for Incurables at ybrook will each receive a sum of £5000. Under the will £2000 are bequeathed to the Rotunda Hospital, in, and a *like sum to the Royal Victoria* Eye and Hospital.—The late Mr. F. W. G. Moran of Glossop eathed £1000 to *the Wood's* Hospital, Glossop.— r *the will of* Miss Marianne F. Hasker of St. Leonardsa the following institutions benefit to the extent of 0 each:

mary, ar

g hospi

Hospital, Charing Cross

Chelsea Hospital for

Incurables (Putney),

and Children (Maryle-

ildren (Great Ormond-

).—Under the will of Mr. Walter Evans of Darley ey, Derby, Derbyshire Royal Infirmary receives £1000; Children's Hospital, Derby, £250; the Royal Deaf and b Institution, Derby, £500; and the Devonshire Hos-Buxton, £250.

NITED KINGDOM POLICE SURGEONS' ASSOCIA—At the annual meeting of the members of this ciation, which was held recently the report of the cil was presented. At the date (July 30th) of the annual meeting the departmental committee of the e Office had nearly completed taking evidence and as hoped that its report would soon be issued. The

and allowances to medical witnesses, especially those attending sessions or assizes from a distance. It is satisfactory also to notice that it recommends the fee of one guinea for the medical examination *of persons in cases of sexual offences*. The council also records with pleasure the great assistance it has received from the council and officers of *the British Medical Association in this important matter.* The report of the council further states that early in the year Mr. F. W. Lowndes posted, at his own expense, copies of last year's report with a private letter and form of application for membership to 150 police surgeons whose names appeared in the last Constabulary Almanack. He also wrote letters to THE LANCET and the *British Medical Journal*, which were duly published, *asking all police* surgeons who had not received them and wished to do so to communicate with him. The result was very disappointing and the council reiterates the request given at the end of its last report that every member should coöperate in trying to obtain the accession *to* their ranks of *police surgeons who* are not members.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BLACKE, MORTON, has been appointed Deputy Medical to the Thornbury Workhouse and District.

BROWN, J. WALTER, B.A., M.B., B.Ch., has been appointed Medical Officer of Health for the County of Hokianga, New Zealand, and

the Hokianga District.

., Ch.B. Adel., has been appointed the Adelaide Hospital, South Australia.

CROSS, JOHN, M.B., Ch.B. Glasg., has been appointed House Surgeon to the Victoria Infirmary, Glasgow.

DAVIS, EDWARD SANDOM STONE, M.R.C.S., L.S.A., has been appointed District Medical Officer by the St. Austell (Cornwall) Board of Guardians

ECC has been appointed

GEO has been Central

GIL Honorary

HA Honorary

HA

KIR

MI L.R.C.P. & S. Edin., has been istrict of the Poplar Union.

NI appointed Honorary Physician stralia

M.R.C.S., L.R.C.P., has been nham Hospital.

ry Surgeon to the

ed House Surgeon

been appointed ndon Temperance

Assistant

Hospital

M.D. Cantab., has been appointed Honorary Assistant Australia.

R.C.S. Edin., has been laide Hospital, South Australia.

WILSON, JAMES, M.B., Ch.B. Glasg., has been appointed House Physician to the Victoria Infirmary, Glasgow.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Honorary Assistant Surgeon; of £30 per annum.

Communications, Letters, &c., have been received from—

A.—M. J. Astier, Asnières, France; Messrs. Allen and Hanburys, Lond.

B.—Mr. F. G. Butler, St. Neots; Messrs. F. and J. Bruce, Lond.; Birkenhead Borough Hospital, Secretary of; Messrs. J. Bisset and Co., Aberdeen; Messrs. W. H. Beynon and Co., Cheltenham; Betterment of London Association, Hon. Secretary of; Mr. C. A. Ballance, Lond.; Mr. W. T. Brook, Swansea; T. B. Browne, Ltd., Lond.; Mr. E. Stanmore Bishop, Manchester; Messrs. Bartlett and Bickley, Lond.; Dr. E. R. Bowen, Cardiff; Mr. S. H. Benson, Lond.; Mr. C. L. Bedford, Birmingham; Messrs. R. and J. Beck, Lond.; Mr. Wm B. Bennett, Liverpool; Messrs. Burroughs, Wellcome and Co., Lond.

C.—Mr. G. H. Colt, Lond.; City of Dundee, Town Clerk of; Messrs. S. Clark and Co., Lond.; Cotswold Sanatorium, Cheltenham, Secretary of; College of Preceptors, Lond., Secretary of; Century Insurance Co., Lond.; Camden road (277A), Lond.; Dr. Leigh Canney, Lond.

D.—Mr. Alban Doran, Lond.; Mr. G. W. B. Daniell, Edinburgh; Dr. E. H Douty, Davos Platz; Dr. M. V. Dee, Dungarvan; Messrs. F. Duerr and Sons, Manchester; Dental Manufacturing Co., Lond.; Mr. E. Darke, Lond.

E.—Mr. W. H. Eady, Lond.

F.—Mr. G. W. Fox, Manchester; Mr. F. E. Fremantle, Lond.

G.—Mr. H. J. Glaisher, Lond.; Dr. G. A. Gibson, Edinburgh; Dr. A. W. Gilchrist, Nice; Great Eastern Railway Co., Lond., Manager of.

H.—Mr. O. L. Holst, Eastbourne; Dr. R. Crawshaw Holt, Burnley; Mr. Wm. Hern, Lond.; Mr. T. D. Harries, Lond; H. P. G.

J.—Dr. E. W. Jones, Longton; Mr. G. M. Jones, Sydney, New South Wales; Messrs. J. F. Jones and Co., Paris; Messrs. W. Judd, Lond.; J. T. C. M.

K.—Dr. D. Kyle, Stanley; Mr. S. Karger, Berlin; Messrs. R. A. Knight and Co., Lond.

L.—Mr. H. K. Lewis, Lond.; Leicester Infirmary, Secretary of; Mr. S. A. Lucas, Nelson, New Zealand; London (Royal Free Hospital) School of Medicine for Women, The Council of.

M.—Mr. R. Mosse, Berlin; Mr. W. Beddoes Moore, Stourbridge; Mr. S. B. Mason, Pontypool; Dr. T. H. Macfie, Bolton; Messrs. J. M. Mitchell and Co., Glasgow; Mr. B. G. A. Moynihan, Leeds; Medico Psychological Association of Great Britain, Registrar of; Maltine Manufacturing Co., Lond.; Midland Medical Union, Nottingham, President of; Melbourne, Town Clerk of; Mr. John Macaulay, Newport, Mon.; M. T.; M. U.

N.—National Art Collections Fund, Hon. Secretaries of; Mr. Robert Newman, Lond.; Newark-upon-Trent Hospital, Secretary of; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Mr. W. K. Oliver, Lond.; Mr. E. M. Owen, Guildford.

P.—Mr. T. Piggott, Cambridge; Dr. Payot, Lausanne; Messrs. Phillipson and Golder, Chester; Poplar Union, Clerk of; Messrs. T. Peatling and Sons Wisbech; Mr. Y. J. Pentland, Edinburgh; Lieutenant Colonel F. P. Perry, I.M.S., Lond; Messrs. Pratt and Co., Manchester.

R.—Royal College of Physicians, Lond.; Royal Institute of Public Health, Lond., Secretary of; Mr. E J. Reid, Lond.; Messrs. Rorke and Jackson, Nottingham; Messrs. Robertson and Scott, Edinburgh.

S.—Dr. Ed. Schoesser, Wiesbaden; Mr. F. J. Scrimgeour, Paris, Mr. C. C. Skardon, Evershot; Messrs. M. Samuel and Co., Lond.; S. D. S.; Saarbachs News Exchange, Mainz; Dr. J. F. Schamberg, Philadelphia; Dr. G. S. R. Shitch, Dublin; Mr. C. F. Sutton, Holmes Chapel; St. Mary's Hospital Medical School, Lond., Medical Staff and Lecturers of; Surgeon E Sutton, R.N., Plymouth; Mr. W. Searle, Weston-super-Mare; Mr. C. Sandner, Chicago, U.S A.; Dr. R. Sandor, Buda Pesth; Messrs. Sherratt and Hughes, Manchester; Messrs. G. Street and Co., Lond.; Messrs. Spiers and Pon [illegible] rical, &c., [illegible] Dr. J. Goo [illegible]

T.—Mr. T. E. Frazer Toovey, Lond.; Messrs. R. Tidey and Son, Lond.; T. E., Fordingbridge.

U.—University of London, Secretary to the Senate of.

V.—Messrs. Vogel and Kreienbrink Berlin.

W.—Dr. E. B. K. Walker, Oxford; Messrs. A. Westwood and Son, Cupar-Fife; Warwick County Asylum, Hatton, Medical Superintendent of; Westrumite Ltd., Lond., Directors of; Mr. H. M.

Woodco
J. Dence
Mr. R.
V. Woo
Waters,
India;
Ashford,
W. War
William
Wallach
Watt, G,

Letters, each with enclosu acknowledged fro

A.—Mr. H. Appleton, The Lizard; Dr. F. H. Alderson, Lond.; Dr. W. D. Anderson, Ballachulish; Dr. J. Andrews, Lond.; A. A. B.; A. J. V. M; A. E. P.; A. R. H.; Mr. J. S. Austin, Lenzie; A. B.; A. G.

B.—Sir T. Lauder Brunton, Lond.; B. E. T.; B. M. M., Purley; Mr. J. O. Bladworth, Goole; Birkenhead, &c., Hospital, Hon. Treasurer of; Messrs. Battley and Watts, Lond.; Mr. C. Banks, Sheffield; Mr. G. L. Brown, Hanley.

C.—Dr. R. H. Cook, Lond; Mr. P. Cohen, Bonn; Mr. G. E. Cotter, Lond; Dr. A. E. Carver, Lond.; Mr. J. C. Curtis, Mumbles; Capolin Co, Lond., Secretary of; Mr. J. J. Crowley, Cork; Condensed Peptonised Milk Co., Lond.; C. H. D.; C. B. H.; C. C.

D.—Dr. A. S. Dick, Glasgow; Dr. W. Deeping, Hastings; D. S. D.; Messrs. H. Dawson and Co., Lond.

E.—Mr. T. Edgworth, Bristol; Edith-road (97), Lond., E. E. M.; E. J. P.

F.—Dr. C. E. Fish, Ruthin; Messrs. Fry, Miers, and Co., Lond.; F. F. A.

G.—Dr. H. L. Gordon, Florence; Dr. J. Grant, Eastleigh; Dr. R. Griffith, Dudley.

H.—Mr. E. J. Hynes, Bedford; Mr. J. Heywood, Manchester; Mr. J. D. Hadden, Lond.; H. R.; Dr. W. T. Hedley, Hallaton; Miss Hodgkinson, Tunbridge Wells; Dr. W. B. Heywood, Beckenham; Dr. T. Hawkesworth, Sudborough; Mr. J. T. Hyatt, Shepton Mallet; H.; Mr. W. Hunter, Sunderland; H. M. G.; Mr. F. A. Hallsworth, Dilwyn.

I.—I. G.

J.—Dr [illegible]
Dr. [illegible]
Mr. [illegible]
Jers [illegible]
Secretar
J. L. J.;
J. H. M,

K.—Messr

L.—Mr. R.
Lawson,
Superint
J. H. La

M.—Dr. T
Dr. C. M
C. Macfi

N.—Mr. F.
Mr. J. W
Miss New

O.—Mr. H.
R. S. Old

P.—Mr. J.
Parke's
Secretary
Ystrad;
and Co.,

R.—Mr. W.
Mr. R. W
R. W.;
R. F. S.

S.—Mr. A.
Mr. W.
Park; S
Secretary
Pretoria,
Sandiford
Mr. R. B
Mr. J. M.
St. John's
of the S
tendent
Leeds; S.

T.—Mr. J.
Mr. R. Th
Miss E.
Dr. C. H
T. H. S.; T

V.—Volox, L

W.—Mr. W.
chester; W
Hospital, S
Mr. C. Wit
Mr. A. Wol
W. R. G.
Wysard,
A. T. Wils

EVERY FRIDAY. THE LANCET PRICE

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.	
One Year	£1 12 6
Six Months	0 16 3
Three Months	0 8 2

TO THE COLONIES AND ABROAD.	
One Year	£1 14 8
Six Months	0 17 4
Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines
Official and General Announcements	Ditt
Trade and Miscellaneous Advertisements	Ditt
	Every addit

Quarter Page, £1 10s. Half a Page, £2 15s. A

Terms for Position Pages and Serial Insertions

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 at affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompan

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertis should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made paya Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United tisements are also received by them and all other Advertising Agents.

Agent for the [illegible]